

HENGGUANG (MILES) LI

(ADMINISTRATIVE)

*Director, Institute for AI and Data Science
Professor and Chair, Department of Mathematics
Wayne State University, Detroit, MI 48202, USA*

The curriculum vitae is organized into two parts: the **administrative CV** (page 1 – page 11) and the **academic CV** (page 12 – page 30).

Preferred name (professional/leadership): Miles. Published as: Hengguang Li.

Professional Summary

Academic leader with eight years of departmental leadership and broad executive experience advancing interdisciplinary collaboration, research innovation, and student success. Inaugural director of a university-wide Institute for AI and Data Science that bridges STEM, health sciences, business, and the humanities. Demonstrated success in strategic planning, faculty development, external partnerships, and advancing inclusive excellence.

- **Strategic Leadership Across Interdisciplinary Fields:**

- As the **inaugural Director of the Institute for AI and Data Science**, I provide executive leadership for a university-wide institute dedicated to advancing AI and data science through interdisciplinary research, ethical innovation, industry collaboration, and workforce development. I built the institute's strategic vision, secured startup funding, and forged partnerships across STEM, health sciences, business, and the humanities to translate research into societal impact.
- As **Chair of Mathematics** at Wayne State University, I lead a large and diverse department with a \$9 million annual budget, overseeing recruitment, mentoring, curricular innovation, and research development, while advancing student success and cross-disciplinary collaboration. During my tenure, we have achieved a **40% increase in majors**, facilitated curriculum reforms that **raised student pass rates in precalculus and calculus from 65% to 90%**, and contributed to WSU's impressive **six-year graduation rate increase from 34% in 2014 to 60% in 2022**.
- As the **Founding Director of the Computation, AI, and Data Science (CAD) Initiative**, I spearheaded cross-college collaborations engaging 150+ faculty from natural and social sciences, engineering, medicine, and business, aligning data-driven research with societal needs.
- **National Leadership and Visibility:** Serve in leadership roles and on advisory boards and review panels for national organizations such as NSF, Simons Laufer MSRI, and SIAM, enhancing institutional visibility on national and international stages.

- **Research Excellence & Faculty Support:**

- Led the department to secure over **\$18 million in external funding** to support faculty research, student initiatives, and interdisciplinary projects, expanding the university's research capacity across natural sciences and mathematics.
- Developed cross-college and multi-institutional research initiatives, including quantum computing, brain imaging, public health, and projects integrating AI and domain-specific expertise, fostering strategic partnerships and securing resources. Led collaborations on large-scale funding proposals, including a \$20 million NSF AI Research Institute proposal.
- Actively mentor faculty across disciplines in securing research grants, publishing scholarship, and advancing their careers.

- **Commitment to Student Success & Workforce Development:**

- Directed student-centered initiatives (including new undergraduate and graduate programs, such as M.S. in Data Science & Business Analytics), driving enrollment growth with remarkable improvements in student recruitment, retention, and degree completion.
- Expanded experiential learning opportunities through internships, research partnerships, and interdisciplinary programs that enhance career readiness and student engagement.
- Promoted pedagogical innovation in teaching and learning with technology to ensure high-quality, accessible learning experiences for a diverse student body, significantly improving student success.
- **Advocate for Access and Inclusive Excellence:**
 - Advanced faculty hiring and mentoring initiatives that promote inclusive excellence across STEM disciplines, fostering an equitable academic environment that supports the success and advancement of all faculty.
 - Established and expanded nationally recognized K-12 outreach programs, including Math Corps and Megrez Education, to provide access to high-quality STEM education for students in under-represented and underserved communities.
 - Promoted curriculum development initiatives that integrate global perspectives and foster an inclusive learning environment, preparing students to engage in a diverse and interconnected world.
- **Fundraising, Partnerships, and External Engagement:**
 - Forged partnerships with industry, government, and nonprofits to support translational research and workforce pipelines.
 - Secured over **\$6 million in philanthropic support** and advanced donor engagement to strengthen institutional visibility and impact.

Administrative and Leadership Experience

- **Inaugural Director, Institute for AI and Data Science**, Wayne State University, 2025 - present
- **Chair, Department of Mathematics**, Wayne State University, 2017 - present
- **Founding Director, Wayne State University Initiative for Computation, AI, and Data Science (CAD)**, a *university-wide* interdisciplinary program to promote research and educational collaborations in CAD areas, 2023 - present
- **Chair, Year of Focus Initiative**, Wayne State University, 2025 - 2026
University-wide initiative highlighting a central question or challenge through interdisciplinary programming and dialogue. The 2025 - 26 theme focuses on **Technology and Artificial Intelligence**. Responsible for coordinating campus-wide engagement, curating events, and shaping strategic conversations around emerging technologies.
- **Elected Member, Academy of Scholars**, Wayne State University (inducted 2025)
- **Vice President, Society for Industrial and Applied Mathematics Great Lakes Section**, 2024 - 2025
- **Founder, Megrez Education**, a non-profit organization dedicated to democratizing high-quality supplemental K-12 education, especially for *underprivileged students*. Engage the public through a variety of programs and activities, including regular courses, public workshops and fundraising events, tutoring programs, and internship programs for high school students. It serves hundreds of students each year with diverse backgrounds.
- **President, Wayne State University Association of Chinese Faculty and Staff**, 2023 - 2024
- **Board Memberships**

- NIH/NIBIB Center for Research and Education in Multiscale Bioengineering, Bioimaging, and Biosensing, Delaware State University, 2025 - present
- Society for Industrial and Applied Mathematics Great Lakes Section, 2024 - present
- Wayne State University Association of Chinese Faculty and Staff, 2021 - 2024
- Megrez Education, 2020 - present
- **Advisory Council Memberships**
 - The United Nations Regional Centre of Expertise on Education for Sustainable Development in the Detroit-Windsor Region, 2024 - present

Academic Experience

- **Professor**, Department of Mathematics, Wayne State University, 2018 - present
- **Associate Professor**, Department of Mathematics, Wayne State University, 2015 - 2018
- **Research Fellow**, Air Force Office of Scientific Research (AFOSR), United States Air Force, 2015
- **Assistant Professor**, Department of Mathematics, Wayne State University, 2011 - 2015
- **IMA Postdoctoral Fellow**, Institute for Mathematics and its Applications, University of Minnesota, 2010 - 2011
- **Philip T. Church Postdoctoral Fellow**, Department of Mathematics, Syracuse University, 2008 - 2010

Education

- **Ph.D. in Mathematics, 2008** – The Pennsylvania State University
Dissertation: Elliptic Equations with Singularities: A-priori Analysis and Numerical Approaches
- **Ph.D. Minor in High Performance Computing, 2008** – The Pennsylvania State University
- **B.S. in Computational Mathematics, 2002** – Peking University, China

Administration Overview as Department Chair

As Chair of the Department of Mathematics at Wayne State University (WSU), I am responsible for, as of Spring 2020, a department with 53 full-time faculty (33 tenured and tenure-track faculty and 20 non-tenure track faculty) and 10 office staff. The non-tenure track faculty include teaching faculty and postdocs. The department is in the **College of Liberal Arts and Sciences (CLAS)**. Our faculty have research interests in diverse areas of theoretical/applied mathematics and statistics, including Algebra and Number Theory, Analysis and Partial Differential Equations, Data Science, Geometry and Topology, Numerical Analysis and Scientific Computing, Optimization, Probability and Statistics, and Stochastic Processes. The department offers five undergraduate major degrees, four master's degrees, and one Ph.D. degree in mathematics, applied mathematics, statistics and their applications, including

- B.S. and B.A. in Mathematics
- B.S. in Statistics
- B.A. in Actuarial Mathematics
- B.A. in Mathematical Economics (jointly administered with the Department of Economics)
- M.S. in Mathematics
- M.S. in Data Science and Business Analytics
- M.A. in Applied Mathematics
- M.A. in Mathematical Statistics

- Ph.D. in Mathematics

The department provides a large number of service courses for students in other majors; and also works with the math education group in the College of Education to co-administer an undergraduate secondary education degree program.

WSU holds both the **Carnegie R1 research classification** and **Carnegie's highest community engagement classification**, and is an **Asian American and Pacific Islander Minority Serving Institution**. The math department pursues excellence in research, education and community engagement. We actively participate in regular university outreach events for middle and high school students in Metro Detroit. In addition, the department is the home of Math Corps, a nationally renowned outreach program that features a summer camp and year-round activities for hundreds of Detroit public school students. In the past 30 years, over 80% of Math Corps graduates have been admitted to colleges and universities. In recent years, Math Corps has expanded its operations in several other U.S. cities and in other countries in Africa and Asia.

Inaugural Director of the Institute for AI and Data Science

As the **inaugural Director of the Institute for AI and Data Science (AIDaS)**, I provide executive leadership for a university-wide institute under the Division of Research and Innovation. AIDaS was established to advance AI and data science through interdisciplinary research, ethical innovation, industry collaboration, and workforce development to drive societal impact. Reporting directly to **the Vice President for Research and Innovation**, I lead the strategic vision, administrative operations, and external engagement for the institute, ensuring its alignment with the university's mission to be a leader in urban innovation and research excellence.

Under my leadership, the institute was founded to:

- Lead the conceptualization and establishment of AIDaS, securing an initial three-year startup fund from the Division of Research and Innovation to operationalize the institute's mission and build its foundational infrastructure.
- Architect a collaborative, interdisciplinary framework that integrates foundational AI research with use-inspired applications across multiple colleges, including Engineering, Liberal Arts and Sciences, Medicine, Law, and Business, to address complex societal challenges.
- Champion a shared-governance model featuring a cross-disciplinary Leadership Group, and Internal and External Advisory Boards composed of university deans, Academic Senate representatives, and national leaders from institutions like IBM, Microsoft, and the University of Michigan to ensure institutional accountability and strategic alignment.
- Pioneer the institute's strategic focus on responsible AI and urban innovation, uniquely positioning Wayne State to tailor AI solutions to Detroit's economic and community needs in healthcare, smart mobility, public policy, and advanced manufacturing.
- Design a sustainable operational and financial model that includes the creation of a revenue-generating AI Service Core. This core provides expert consulting to campus and industry partners, complementing a diversified funding strategy that leverages federal grants, state support, and private contracts to ensure long-term growth.
- Forge high-impact strategic partnerships with key industry, government, and community stakeholders to translate research into real-world applications, enhance regional economic competitiveness, and build a robust talent pipeline for the 21st-century workforce.

Interdisciplinary Leadership: Founding Director of CAD Initiative

As the Founding Director of the Wayne State University Initiative for Computation, AI, and Data Science (CAD), I lead interdisciplinary initiatives advancing the university's research enterprise, external partnerships, and institutional priorities. CAD fosters cross-college research collaborations, enhances student education and workforce development, and strengthens ties with industry, business, government, and non-profit sectors.

Under my leadership, the CAD initiative has:

- Engaged over 150 faculty members from natural sciences, mathematics, engineering, computer science, medicine, business, and social sciences, leading to transformative research initiatives in computational health, transportation, energy, and AI-driven scientific discovery.
- Launched a university-wide AI and data science seminar series and faculty workshops, creating a vibrant forum for advancing research in computational science, engineering, medicine, public health, and high-performance computing.
- Spearheaded a \$20 million NSF AI Research Institute proposal, focusing on AI applications in health informatics and sustainability, collaborating with colleagues from engineering, medicine, and environmental sciences.
- Established partnerships with leaders in automotive, finance, sports, and healthcare industries, advancing applied research in predictive health analytics, next-generation energy storage systems, and computational simulation for scientific and industrial applications.
- Expanded student education and workforce pipelines through the creation of new interdisciplinary degree and certificate programs in AI, data science, and computational modeling, preparing graduates for leadership in various industries.
- Facilitated collaborative research initiatives with major medical centers and research institutes, leading to joint proposals, data-sharing platforms, and externally funded projects addressing critical challenges in population health, sustainability, and intelligent computing systems.

In this director role, I collaborate with deans, department chairs, center and core facility directors, development and foundation offices, and student organizations across colleges. These efforts ensure that the CAD initiative is aligned with institutional priorities and advances Wayne State's research capacity and external funding portfolio. This experience has further strengthened my **executive-level leadership** through cross-college collaboration.

Strategic Planning and Assessments

- Strategically manage the department budget (\$9 million per year).
- Directed the development of the department's five-year strategic plan, engaging faculty in the process (2017).
- Regularly worked with faculty and the CLAS Dean's Office to prepare the transition to the new **responsibility center management (RCM)** budget model (2017 - 2020).
- Established the Planning and Advisory Board to improve communication and exchange of ideas for department planning (2018).
- Completed the eight-year department **Academic Program Review** (2018).
- Served on the external review committee for the Academic Program Review of the Fariborz Maseeh Department of Mathematics and Statistics, Portland State University (2019).
- Chaired the Chemistry Department Chair Review Committee, Wayne State University (2020 - 2021).
- University Policy Committee on Promotion for Teaching Faculty, Wayne State University (2021 - 2022).

- Chaired the Physics and Astronomy Department Chair Search Committee, Wayne State University (2023).
- Working with the College of Engineering on ABET accreditation (2024).
- Chaired the Public Health Department Chair Review Committee, Wayne State University (2024 - 2025).
- Chaired the WSU AI Center Committee, Wayne State University (2025).
- **Strategic Plan Refresh Committee**, Wayne State University (2025). This is a campus-wide committee that guides the process to refresh the University's strategic plan and ensure WSU has a clear, thoughtful forward-facing strategic plan that is both relevant and adaptable to our current context and reflects where we are headed as we launch our comprehensive fundraising campaign in 2026. The committee was chaired by the Provost and included the Board of Governors, the presidents of the Academic Senate and Student Senate, and other key contributors across the university.
- Academic Program Review (APR) Reviewer for the Environmental Science and Geology program, Wayne State University (2025).
- Strategic resource management in tight budgetary times (2017 - 2025).
- Working regularly with unions representing faculty, staff, and graduate students (2017 - 2025).
- Working with faculty and the University to establish rubrics for math course/program annual assessments.
- Chairing the department committees for faculty/staff recruitment, development, retention, and annual review.

Administrative Appointments and Faculty Development

- Appointed the Associate Chair and the Ph.D. Program Director (2017). Appointed the Ph.D. Program Director (2020, 2025). Appointed the Associate Chair and the Master's Program Director (2021). Appointed the Associate Chair (2022).
- New committees established: Marketing and Outreach Committee (2017), Bylaws Committee (2018), Activities Committee (2018), Preparatory Courses Committee (2018), Mathematics/Industry Partnership Mentoring Committee (2021), Teaching Mentoring Committee (2022), Student Organization Advisory Committee (2023).
- Faculty/staff hirings (2017 - 2025): six tenure-track faculty (in fields including Algebra, Statistics, Optimization, Data Science, Math Education, and Analysis/PDEs), seven teaching faculty, six office staff, and three academic advisors.
- Faculty promotions: three associate professors to the rank of Professor (2018, 2020, 2025), three tenure-track assistant professors to the rank of Associate Professor with tenure (2021, 2024), eight lecturers to the rank of Senior Lecturer (2018, 2020), three teaching associate professors to the rank of Full Professor of Teaching (2024, 2025), one undergraduate advisor to the rank of Academic Advisor IV (2019) and one undergraduate advisor to the rank of Academic Advisor II (2020).
- Mentored six postdocs since 2015 and actively involved in establishing and assessing various mentorship programs to support young faculty. These mentorship programs enhance faculty collaborations that led to a **\$3.3 million** DoE collaborative grant received by the math and chemistry departments in 2021.
- Facilitator of the CLAS Grant Writing Workshop (2022).
- Initiated the discussion and worked with the Provost, the Dean, and faculty in different tracks on course release, special awards, creation of new track options, and on faculty hiring/retention, and on initiatives promoting excellence in research, teaching, and service.

- The department received over **\$18 million in external funding** (2017 - 2024).
- Responsible for teaching and service assignments, and other general administration duties.

New Programs, Experiential Learning, and Student Success

- Developed three new undergraduate programs in the math department: **B.S. in Statistics**, **B.A. in Actuarial Mathematics**, and **Minor in Statistics**; all started in fall 2018.
- Developed a new graduate program in collaboration with the College of Engineering and the School of Business: **M.S. in Data Science & Business Analytics**, started in fall 2020.
- Developed a new **Certificate in Bioinformatics and Data Analysis** in collaboration with the Department of Biological Sciences, 2025.
- Led the effort for a major curriculum update for M.S. in Mathematical Statistics (2021).
- Enrollment of undergraduate math majors increased by **40%** (2017 - 2022).
- Created the **online program/course development** initiative in the department in 2018. The first online math course became available in summer 2019, which provided key technological and administrative infrastructure for the unexpected transition to complete online instruction in 2020 due to the pandemic. The first undergraduate minor **online program** started in fall 2020.
- Our strategic efforts (2017 - 2022) to advance academic excellence and student success were an important contributor to **WSU's impressive six-year graduation rate increase**—from **34% in 2014 to 60% in 2022**, a remarkable **76%** improvement.
- Facilitated the initiative to promote **pedagogical and technological innovations** in virtual learning (online, hybrid, flipped classroom, etc.) along with data-driven assessment rubrics (2021-2024). Introduced new precalculus and calculus courses using a flipped classroom model in 2023, resulting in a significant increase in student success, with **student pass rates rising from 65% to 90%**.
- Collaborated with the CLAS Dean's Office and with the Detroit Public Schools Community District (DPSCD) to establish **the Math Brigade**, an internship program for college students to provide free math tutoring to K-12 students in DPSCD (2022 - 2025).
- Facilitated **the Actuarial Student Workshop**, a 8-week workshop in the summer to help students prepare for the SOA/CAS Exam P/1, deepen understanding of probability theory, and strengthen problem-solving and teaching skills through an active learning model (2025).
- Collaborated with the Michigan Science Center (<https://www.mi-sci.org>) and the CLAS Dean's Office to enhance the **WSU science outreach** effort in Detroit and to promote public participation and awareness of scientific discovery (2022 - 2025).
- Established the Careers in Mathematics Mentorship Program connecting students with alumni mentors in their field (2021).
- Established the Faculty Advisor Guide to promote excellence in undergraduate advising (2020).
- Initiated and worked out an agreement with the Provost's Office to establish the **international student exchange (3+X) program** between Wayne State University and South China Normal University (2018).
- New courses developed by faculty through initiatives (2017 - 2023): Introduction to Quantum Computing, Introduction to Data Science, Topological Data Analysis, Mathematics of Finance, Mathematics in Today's World, Internship in Mathematical Sciences, Fundamentals of Mathematics and Proof-Writing, Elementary Algebra, and Mathematical Epidemiology.
- Established a new department graduate teaching assistant (GTA) orientation practice (2017).

- Actively engaged in **recruitment events** (e.g., AP Day, STEM Day, FestiFall, Center for the National Math Sciences Alliance, and the Graduate School Open House) throughout the academic year (2017 - 2025).
- Engaged in the **Wayne State NIH BEST program** and the **Wayne State NSF WIDER/SSTEP program** to enhance the undergraduate/graduate career development programs and innovate evidence-based pedagogies (2017 - 2021).
- Facilitated initiatives to promote pedagogical innovation and enhance teaching coordination in **gateway math courses** to increase student success (2017 - 2022).
- Initialized a pilot program to allow students transferring math course credits taken at other universities and community colleges to WSU (2019).
- Developed the four-year study plan for undergraduate math majors who are also interested in pre-med programs (2020).
- Established a new graduate student career advice workshop and the associated database (2017).
- Multi-year participation in the Math-to-Industry Boot Camp at the Institute for Mathematics and its Applications, University of Minnesota, in an effort to develop industry partnerships and establish graduate summer programs on **data science** and applications.
- Building an **undergraduate research program** in collaboration with faculty and industry partners.
- Collaborating with the Novi Community School District in Novi, Michigan to establish high-school math teacher training programs and to enhance K-12 math education.

Intra-University Collaborations

- Collaborated with various units on campus (e.g., the Provost's Office, the College of Engineering, the College of Education, and many departments in the CLAS) for a major revision to the university general education curriculum: the creation of the Quantitative Experience competence requirement for all WSU undergraduate students (2018).
- Led a group proposal to the Provost's Office on **strategic hirings in Big Data** (2018). This group included Department Chairs in Computer Science and Geology, and Director of the Biostatistics Core at the School of Medicine. This effort led to a university-wide cluster of Big Data hirings in the 2018-2019 academic year.
- Collaborated with the physics department and a private donor to establish the **Math Placement Exam Boot Camp** in Summer 2019 to increase the freshman retention rate.
- Collaborated with the College of Education to reform the math undergraduate programs by adding the teaching certificate option (2020 - 2023).
- Collaborated with the Wayne State **Department of Philosophy** to develop the new course "**AI and the Conscious Mind**". Co-taught this course with a philosophy professor in spring 2025.
- Collaborating with multiple departments across the university for a new Masters program in biostatistics, including the Department of Family Medicine and Public Health Sciences, the Department of Public Health, the Department of Psychology, and the Department of Sociology.
- Worked with a team of AI researchers from multiple departments (Chemical Engineering and Materials Science, Computer Science, Environmental Science and Geology, Economics, Industrial & Systems Engineering, and Mechanical Engineering) on a **\$20 million proposal to establish an NSF AI Research Institute** at Wayne State University (2024).
- Collaborating with the College of Engineering to revise the precalculus course curriculum for engineering students.

Strategic Partnerships, Entrepreneurship, and Fundraising

- Secured seed funding from a donor for a university-wide **initiative for research/education collaborations in Computation, AI, and Data Science (CAD)**. Working with the Offices of the Provost and the Vice President for Research, we support the programs and activities in CAD areas. This initiative involves faculty and administrators in the CLAS (Biology, Chemistry, Criminal Justice, Economics, English, Geology, Mathematics, Physics, Philosophy, Psychology, Sociology), the College of Education, the College of Engineering (Civil and Environmental Engineering, Computer Science, Industrial and Systems Engineering), the School of Business, and the School of Medicine (2023).
- **Attendee, Annual APACC Gala, MGM Grand Detroit (2023 - 2025)**. Represented Wayne State University at the Asian Pacific American Chamber of Commerce (APACC) Gala, fostering connections with industry leaders, entrepreneurs, and civic organizations. Engaged in discussions on business development, diversity in leadership, and economic opportunities. Strengthened WSU's presence in the regional business and entrepreneurship ecosystem through networking and collaboration opportunities.
- Collaborated with the College of Engineering and the Vice President for Research at WSU to establish a strategic partnership with the U.S. Army Combat Capabilities Development Command Ground Vehicle Systems Center (GVSC), advancing research and educational initiatives in engineering, computing, and mathematics with applications to GVSC (2024).
- Secured funding for department facility upgrades, including equipping the seminar room for hybrid meetings, updating computing equipment and technology in the computer lab, and renovating the tutoring center (2023 - 2024).
- Collaborated with the Detroit Tigers to engage graduate students in baseball analytics projects (2022 - 2023).
- Conceptualized and established the **Statistics Consulting Services Center** in the math department, serving clients from academia, business, industry, and government (2018).
- Secured external funds for a **major department facility renovation**: creating a department seminar room, a faculty lounge, a mail room, and completely remodeling the hallway (2017 - 2018).
- Engaged alumni and potential donors in dozens of events and accumulated more than **\$6 million** support committed (2017 - 2025).
- Worked with Wayne State Alumni Association to nominate a math alumnus to the WSU Alumni Association Board of Directors (2022).
- Hosted the department **Awards Ceremony** (2018 - 2025). Delivered **keynote speeches** to students, parents, alumni, potential donors, and people from industry and business on math education, AI, the research achievements of the department and the AI institute, and their significance in the society.
- Worked with the senior leadership in Blue Cross Blue Shield of Michigan (largest health insurer in Michigan) to create **long-term internship opportunities** for math students (2018).
- Worked with Blue Cross Blue Shield of Michigan and Willis Towers Watson to build the first black students actuarial science chapter in Detroit (2021).
- Collaborating with professionals from Northrop Grumman, Microsoft, Google, GM, Rocket Mortgage, and other tech-intensive companies to expand research and educational opportunities for WSU faculty and students.

Outreach and Media Appearances

- **Moderator**, Wayne State University Panel: "Rethinking PhD education with AI" (2026).
- **Moderator**, Wayne State University *Year of Focus* Panel: "AI in Action" (2026).

- **WJR Radio Interview** on *the rise of AI-generated fake phone calls and scams* (2025).
- **Panelist**, Wayne State University *Research Grand Challenges* Launch Event (2025).
- Featured in Wayne State University "Welcome Back" video (Academic Year 2025 - 2026).
- **Interview with Crain's Detroit Business** on mathematical modeling of COVID-19: *Pandemic modeling is an imperfect, but important tool* (2020).

Marketing and Communication

- Initiated the department newsletter (2017).
- Initiated the department **Annual Gathering Picnic** for faculty, staff, and Ph.D. students. Each picnic (2018 and 2019) had over 100 participants.
- Initiated the department weekly **Tea and Treat** for faculty, staff, and students (2022).
- Initiated and sponsored the department **Annual Holiday Appreciation party** for faculty, staff, and students (2022 - 2024).
- Redesigned the department website with more user-friendly interface and more useful online information for faculty and students (2020).
- Initiated the department social media accounts on Facebook (2017) and Twitter (2019), maintained by the Marketing and Outreach Committee.
- Worked with the university marketing office to develop a variety of **new marketing materials**: brochures and flyers for undergraduate and graduate programs, research guide, department logo/sign, mugs, T-shirts, document templates, etc. (2017 - 2025).

Inclusive Excellence

I am strongly committed to building a community of inclusive excellence. Research universities are serving a student body that is increasingly diverse and are addressing problems that are increasingly complex. To advance the university mission in research, education and service, and to make broader social impacts, it is important to embrace the rich intellectual, ethnic and cultural perspectives of the local and global communities we serve, reflect them in our faculty, staff and students, and cultivate a culture of inclusion in our scholarship, teaching, and learning activities.

As a public research university in Detroit, Wayne State University has a very diverse student body, and offers a broad range of educational programs for students from different countries, cultures and socioeconomic backgrounds. As an administrator, I have overseen and helped develop various policies and programs to meet the demands from different communities and groups, to improve student success, faculty development and access to education, and to foster an equitable and inclusive community.

Leadership Development

- Council for Advancement and Support of Education (CASE) District Annual Conference, Chicago (2024). This conference offers the innovation, resources, and partnerships to develop effective advancement practices in a changing education landscape. Gain cutting-edge industry insights to improve operations, stay on the cusp of trends, and connect with like-minded leaders.
- Strategic-Leadership Program, The Chronicle of Higher Education (2023).
- AMS Virtual Workshop for Department Chairs & Leaders (2021).
- AMS Workshop for Department Chairs & Leaders, Denver (2020).
- Chairs Summer Leadership Institute, Wayne State University (2019, 2020, 2022).
- AMS Workshop for Department Chairs & Leaders, Baltimore (2019).

- Chair Chats Workshops, Wayne State University (2018 - present).

Other Committee Services

- **NSF Review Panel** for a program on *Digital Twins and Biotechnology*, National Science Foundation (2025).
- **NSF Review Panel** for a program on *Computational Science and Mathematics*, National Science Foundation (2024).
- **NSF Review Panel** for a program on *Experiential Learning for Cutting-Edge Technologies with a Focus on Artificial Intelligence*, National Science Foundation (2023).
- **NSF Review Panel** for a program on *Computational Engineering and Data Science*, National Science Foundation (2013, 2015).
- **Committee on Academic Sponsors**, Simons Laufer Mathematical Sciences Institute (formerly known as Mathematical Sciences Research Institute (MSRI)) on UC Berkeley campus (2017 - 2025).
- **University Exploratory Committee on AI, Machine Learning, and Big Data Initiatives**, Wayne State University (2023 - 2024).
- **College Research Committee**, College of Liberal Arts and Sciences, Wayne State University (2023 - 2025).
- **Employee Engagement Group Advisory Council**, Wayne State University (2023 - 2024).
- **Nexus Committee for STEM Inclusion Initiatives**, Wayne State University (2022 - 2023).
- **Editorial Board**: International Journal of Numerical Methods and Applications (2013 - 2021).
- **PI Conference Proposal Review Committee**, Institute for Mathematics and its Applications, University of Minnesota (2020).
- **Program Review Committee**, Michigan Association of State Universities (MASU) (2019, 2020).
- **Scientific Research Promotion Committee**, Scientific Research Office, Chinese Academy of Sciences (2019).
- **STEM Innovation Learning Center Steering Committee** to oversee the \$40 million construction of the WSU STEM Innovation Learning Center that features state-of-the-art labs and classrooms, Wayne State University (2018 - 2019).
- **Oak Ridge Associated Universities Powe Junior Faculty Award Committee**, Office of the Vice President for Research (OVPR), Wayne State University (2018).
- **Council of Chairs**, College of Liberal Arts and Sciences, Wayne State University (2017 - present).
- **University Research Grant Selection Committee**, Wayne State University (2017).
- **Department committee chairs**: Strategic Plan Committee (2025); Personnel Committee (2017 - present); Faculty Search Committee (2017 - present); Salary Committee (2017 - present); Planning and Advisory Board (2018 - present).
- **Department committee members**: Graduate Committee (2015 - 2016); Advising Committee (2013 - 2015); Managing Committee of the Computer Lab (2012 - 2014); Organizer of Math Colloquium (2015 - 2017); Organizer of Applied Mathematics Seminar (2012 - 2017).

HENGGUANG (MILES) LI

(ACADEMIC)

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Employment

- **Professor**, Department of Mathematics, Wayne State University, 2018 - present
- **Associate Professor**, Department of Mathematics, Wayne State University, 2015 - 2018
- **Research Fellow**, Air Force Office of Scientific Research (AFOSR), United States Air Force, 2015
- **Assistant Professor**, Department of Mathematics, Wayne State University, 2011 - 2015
- **IMA Postdoctoral Fellow**, Institute for Mathematics and its Applications, University of Minnesota, 2010 - 2011
- **Philip T. Church Postdoctoral Fellow**, Department of Mathematics, Syracuse University, 2008 - 2010

Administrative, Leadership, and Entrepreneurial Experience

- **Inaugural Director, Institute for AI and Data Science**, Wayne State University, 2025 - present
- **Chair, Department of Mathematics**, Wayne State University, 2017 - present
- **Founding Director, Wayne State University Initiative for Computation, AI, and Data Science (CAD)**, a *university-wide* interdisciplinary program to promote research and educational collaborations in CAD areas, 2023 - present
- **Chair, Year of Focus Initiative**, Wayne State University, 2025 - 2026
University-wide initiative highlighting a central question or challenge through interdisciplinary programming and dialogue. The 2025 - 26 theme focuses on **Technology and Artificial Intelligence**. Responsible for coordinating campus-wide engagement, curating events, and shaping strategic conversations around emerging technologies.
- **Elected Member, Academy of Scholars**, Wayne State University (inducted 2025)
- **Vice President, Society for Industrial and Applied Mathematics Great Lakes Section**, 2024 - 2025
- **Founder, Megrez Education Inc. (www.megrezeducation.org)**, a non-profit organization dedicated to democratizing high-quality supplemental K-12 education, especially for *underprivileged students*. Engage the public through a variety of programs and activities, including regular courses, public workshops and fundraising events, tutoring programs, and internship programs for high school students. It serves hundreds of students each year with diverse backgrounds.
- **President, Wayne State University Association of Chinese Faculty and Staff**, 2023 - 2024
- **Board Memberships**
 - NIH/NIBIB Center for Research and Education in Multiscale Bioengineering, Bioimaging, and Biosensing, Delaware State University, 2025 - present
 - Society for Industrial and Applied Mathematics Great Lakes Section, 2024 - present
 - Wayne State University Association of Chinese Faculty and Staff, 2021 - 2024
 - Megrez Education, 2020 - present
- **Advisory Council Memberships**

- The United Nations Regional Centre of Expertise on Education for Sustainable Development in the Detroit-Windsor Region, 2024 - present

Education

- **Ph.D. in Mathematics, 2008** – The Pennsylvania State University
Dissertation: Elliptic Equations with Singularities: A-priori Analysis and Numerical Approaches
- **Ph.D. Minor in High Performance Computing, 2008** – The Pennsylvania State University
- **B.S. in Computational Mathematics, 2002** – Peking University, China

Research Interests

- **Numerical Analysis, Partial Differential Equations, and Scientific Computing**
- **Data Science, Artificial Intelligence, and High-performance Computing**
- **Numerical Methods for Differential Equations, Especially with Singularities**
- **Fast Numerical Solvers for Large Systems of Equations**

Visiting Positions

- **Visiting Professor**, Department of Information and Sciences, Tokyo Woman's Christian University (Japan), 12/2025
- **Visiting Professor**, Laboratoire de Mathématiques et leurs Applications de Valenciennes (LAMAV), Polytechnic University of Hauts-de-France (France), 11/2022
- **Invited Professor**, Department of Mathematics, University of Lorraine (France), 07/2019
- **Visiting Professor**, Laboratoire de Mathématiques et leurs Applications de Valenciennes (LAMAV), Polytechnic University of Hauts-de-France (France), 10-11/2018
- **IMA Visitor**, Institute for Mathematics and its Applications, University of Minnesota, 01-05/2016

Honors and Grants

- **Research**
 - **Member, Wayne State University Academy of Scholars, elected 2025**
Election to membership in the Academy is the *highest recognition* of faculty by their colleagues at Wayne State University for scholarly research or creative achievements that represent significant original contributions to their fields, the academic community, and to society.
 - **NSF Grant DMS-2208321 (PI)**, “Analysis and Novel Finite Element Methods for Elliptic Problems with Complex Boundary Conditions”, National Science Foundation, 09/2022 - 08/2026, \$226,507
 - **Japan Society for the Promotion of Science (JSPS) Research Grant** (jointly supported by NSF) for research collaboration in Japan, 2025, ¥378,000
 - **Wayne State University Internal Research Grant (Co-PI)**, “AI-Driven Deep Mapping of Community and Human-Environment Interactions across Time and Space”, 12/2025 - 12/2026, \$26,073 (team including members from **anthropology** and **computer science**)
 - **Faculty Competition for Postdoctoral Fellows Award (PI)**, “Novel Numerical Algorithms for Anisotropic Models: Analysis, Design, and High Performance Computing”, Wayne State University, 08/2023 - 07/2025, \$60,000

- **NSF Grant DMS-1819041 (PI)**, "Novel Finite Element Methods for Three-dimensional Anisotropic Singular Problems", National Science Foundation, 08/2018 - 07/2022, \$198,991
- **International Congress of Chinese Mathematicians Invited Lecture (45 minutes)**, Beijing, China, 06/2019
- **Faculty Competition for Postdoctoral Fellows Award (PI)**, "Novel Numerical Methods for Anisotropic Singular Problems: Theory and Implementations", Wayne State University, 08/2019 - 07/2021, \$60,000
- **Career Development Chair Award (PI)**, "Novel Numerical Algorithms for Singular Problems", Wayne State University, 08/2017 - 07/2019, \$19,000
- **NSF Grant DMS-1418853 (PI)**, "Theory and Implementation of Novel Numerical Methods for Equations with Singularities", National Science Foundation, 09/2014 - 08/2018, \$152,805
- **NSFC Grant 11628104 (lead PI)**, National Natural Science Foundation of China, 01/2017 - 12/2018, \$30,000 (¥200,000)
- **IMA General Membership**, Institute for Mathematics and its Applications, 2016, \$10,000
- **Air Force Faculty Fellowship**, Air Force Office of Scientific Research (AFOSR), 2015
- **Grants Plus Award (PI)**, "Ultrafast Parallel Numerical Methods for Partial Differential Equations", Wayne State University, 07/2015 - 12/2017, \$100,000
- **NSF Grant DMS-1158839 (PI)**, "Novel Numerical Methods for Partial Differential Equations with Low-regularity Data", National Science Foundation, 09/2011 - 08/2014, \$60,066
- **Third Annual Research Cluster Award (lead PI)**, Silicon Mechanics, 05/2014, \$190,000 (team including members from **engineering, physics, chemistry, biology, and medicine**)
- **Fan China Exchange Grant (PI)**, American Mathematical Society, 08/2013 - 08/2014, \$5,000
- **University Research Grant (PI)**, Wayne State University, 08/2013 - 08/2015, \$10,000
- **University Startup Fund**, Wayne State University, 08/2011 - 08/2013, \$10,000
- **Best Paper Award**, *13th Copper Mountain Conference on Multigrid Methods*, 2007
- **Third Place of the Poster Presentation Competition** at *Second Annual Computation Day*, Penn State University, 2006
- **Honorable Mention**, *Mathematical Contest in Modeling*, Peking University, China, 2001

• Education, Mentorship, and Service

- **Student Service Fee Fund (co-PI)**, Wayne State University, 2025, \$32,097
- **Student Service Fee Fund (co-PI)**, Wayne State University, 2024, \$77,392
- **University Service Award**, Wayne State University, 2023
- **Excellence in Postdoctoral Mentorship Award**, Wayne State University, 2021
- **Knowledge on Demand Grant (lead PI)**, Wayne State University, 2020, \$5,000
- **Student Service Fee (Omnibus) Funds (PI)** for Instructional Technology, Wayne State University, 2018, \$105,923
- **Sub-grant of the NIH Wayne State Broadening Experiences in Scientific Training (BEST) Program (co-PI)**, 09/2017 - 08/2018, \$10,000
- **ZZRQ Outstanding Service Award**, Penn State University, 2008
- **Charles H. Hoover Memorial Teaching Award**, Penn State University, 2007
- **Certificate of Teaching with Technology**, Penn State University, 2007
- **Graduate Assistant Teaching Award**, Penn State University, 2006

• Travel Awards

- A grant (\$1000) from ICERM to participate in *NSF/CBMS Conference: Finite Element Exterior Calculus (FEEC)*, Brown University, 06/2012
- A grant (\$800) from IPAM to participate in *Tony Chan's 60th Birthday Conference: Frontier of Computational and Applied Mathematics*, UCLA, 06/2012
- **AMS Travel Award (\$3050)** to attend *International Congress of Mathematicians*, Hyderabad, India, 02/2010
- A grant (\$980) from Mississippi State University to participate in *the Eighth Mississippi State - UAB Conference on Differential Equations & Computational Simulations*, Mississippi State University, 04/2009
- A grant (\$1080) from IPAM to participate in *the LE2009 Workshop*, UCLA, 02/2009
- A grant (\$1170) from Hausdorff Center for Mathematics to participate in *the Lipschitz Lectures*, University of Bonn, Germany, 01/2009
- A grant (\$500) from Carnegie Mellon University to participate in *the CNA Summer School*, Carnegie Mellon University, 06/2008
- **SIAM Travel Award (\$1600)** to attend the *6th International Congress on Industrial and Applied Mathematics*, Zürich, Switzerland, 04/2007
- A grant (\$550) to participate in *the 13th Copper Mountain Conference on Multigrid Methods*, Copper Mountain, Colorado, 03/2007
- A grant (\$525) from Carnegie Mellon University to participate in *the CNA Summer School*, Carnegie Mellon University, 06/2006

Publications¹

• Books

- *Hengguang Li*. Graded Finite Element Methods for Elliptic Problems in Nonsmooth Domains. Surveys and Tutorials in the Applied Mathematical Sciences. Springer, 2022. ISBN: 978-3-031-05820-2; 978-3-031-05821-9.
- *Hengguang Li*. A Weighted Approach on Elliptic Equations with Singularities: A-priori Analysis and Numerical Methods. VDM Verlag, 2008. ISBN: 978-3-639-10609-1.

• Journal Publications

1. *Hui Du, Hengguang Li, Guanghao Jin, Zhengchao Ding, JoonYoung Paik, and Rize Jin*. Text classification of the multiple datasets based on the multi-dimensional information. To appear in *Complexity*
2. *Hui Du, Hengguang Li, Guanghao Jin, and Qingzeng Song*. A new method for image classification based on the fusion of multi-level deep learning models. *PLOS One*, 21: e0338137, 2026
3. *Hengguang Li and Peimeng Yin*. A C^0 finite element methods for the sixth order problem with simple supported boundary conditions. *Numerical Methods for Partial Differential Equations*, 41: e70048, 2025
4. *Wenbo Gong, Hengguang Li, and Qinghui Zhang*. General enrichments of stable GFEM for interface problems: theory and extreme learning machine construction. *Applied Numerical Mathematics*, 214: 143-159, 2025

¹Note: All works are published under the name Hengguang Li

5. **Bokai Zhu, Hengguang Li, and Qinghui Zhang.** Extended physics-informed extreme learning machine for linear elastic fracture mechanics. *Computer Methods in Applied Mechanics and Engineering*, 435: 117655, 2025
6. **Hengguang Li, Charuka Wickramasinghe, and Peimeng Yin.** Analysis of a C^0 finite element method for the biharmonic problem with Dirichlet boundary conditions. *Numerical Algorithms*, DOI: <https://doi.org/10.1007/s11075-025-02062-4>, 2025
7. **Yuanjie Zhou, Ling Lu, Hengguang Li, Xiaoyang Liu, Dan Huang, and Yinong Chen.** SDZRE: A semantic distillation method for zero-shot relation extraction. *Expert Systems With Applications*, 284: 127609, 2025
8. **Huihui Cao, Hengguang Li, Nianyu Yi, and Peimeng Yin.** Regularity and an adaptive finite element method for elliptic equations with Dirac sources on line cracks. *Journal of Computational and Applied Mathematics*, 462: 116466, 2025
9. **Wenbo Gong, Hengguang Li, and Qinghui Zhang.** Improved enrichments and numerical integrations in SGFEM for interface problems. *Journal of Computational and Applied Mathematics*, 438: 115540, 2024
10. **Hengguang Li, Peimeng Yin, and Zhimin Zhang.** A C^0 finite element method for the biharmonic problem with Navier boundary conditions in a polygonal domain. *IMA Journal of Numerical Analysis*, 43: 1779 - 1801, 2023
11. **Baiju Zhang, Hengguang Li, and Zhimin Zhang.** Solving biharmonic eigenvalue problem with Navier boundary condition via Poisson solvers on non-convex domains. *Journal of Scientific Computing*, 92: Paper No. 24, 20 pp, 2022
12. **Guanghao Jin, Chunmei Pei, Na Zhao, Hengguang Li, Qingzeng Song, and Jing Yu.** Environment adaptive deep learning classification system based on one-shot guidance. *Computers, Materials & Continua*, 73: 5185 - 5196, 2022
13. **Hengguang Li and Serge Nicaise.** A priori analysis of an anisotropic finite element method for elliptic equations in polyhedral domains. *Computational Methods in Applied Mathematics*, 21: 145 - 177, 2021
14. **Young Ju Lee and Hengguang Li.** The macroelement analysis for axisymmetric Stokes equations. *Computers and Mathematics with Applications*, 101: 1 - 22, 2021
15. **Hengguang Li, Xiang Wan, Peimeng Yin, and Lewei Zhao.** Optimal finite element methods for elliptic equations with a finite fracture. *Journal of Computational and Applied Mathematics*, 393: 113518, 2021
16. **Guanghao Jin, Na Zhao, Chunmei Pei, Hengguang Li, Qingzeng Song, and Jing Yu.** Solving the feature diversity problem based on multi-model scheme. *Journal on Artificial Intelligence*, 3: 135 - 143, 2021
17. **Hengguang Li and Xun Lu.** Condition numbers of finite element methods on a class of anisotropic meshes. *Applied Numerical Mathematics*, 158: 22 - 43, 2020
18. **Gerard Awanou, Hengguang Li, and Eric Malitz.** A two-grid method for the C^0 interior penalty discretization of the Monge-Ampère equation. *Journal of Computational Mathematics*, 38: 547 - 564, 2020
19. **Hengguang Li and Qinghui Zhang.** A meshfree finite volume method with optimal numerical integration and direct imposition of essential boundary conditions. *Applied Numerical Mathematics*, 153: 98-113, 2020
20. **Li Guo, Hengguang Li, and Qingsong Zou.** Interior estimates of finite volume element methods over rectangular meshes for elliptic equations. *SIAM Journal on Numerical Analysis*, 57: 2246 - 2265, 2019

21. **Hengguang Li, Lin Mu, and Xiu Ye.** A posteriori error estimates for the weak Galerkin finite element methods on polytopal meshes. *Communications in Computational Physics*, 26: 558 - 578, 2019
22. **Majid Haghi, Hengguang Li, and Reza Mollapourasl.** A local radial basis function method for pricing options under the regime switching model. *Journal of Scientific Computing*, 79: 517 - 541, 2019
23. **Li Guo, Hengguang Li, and Yang Yang.** Interior error estimates of semidiscrete finite element methods for parabolic problems with distributional data. *Journal of Computational Mathematics*, 37: 458 - 474, 2019
24. **Hengguang Li and Serge Nicaise.** Regularity and a priori error analysis on anisotropic meshes of a Dirichlet problem in polyhedral domains. *Numerische Mathematik*, 139: 47 - 92, 2018
25. **Hengguang Li, Lin Mu, and Xiu Ye.** Interior energy estimates for the weak Galerkin finite element method. *Numerische Mathematik*, 139: 447 - 478, 2018
26. **Hengguang Li.** An anisotropic finite element method on polyhedral domains: interpolation error analysis. *Mathematics of Computation*, 87: 1567 - 1600, 2018
27. **Hengguang Li and Yu Qiao.** Double layer potentials on polygons and pseudodifferential operators on Lie groupoids. *Integral Equations and Operator Theory*, 90: Art. 14, 26, 2018
28. **Reza Mollapourasl, Ali Fereshtian, Hengguang Li and Xun Lu.** RBF-PU method for pricing options under the jump diffusion model with local volatility. *Journal of Computational and Applied Mathematics*, 337: 98 - 118, 2018
29. **Sadreddin Mahmoodkalayeh, Xu Lu, Mohammad Ali Ansari, Hengguang Li, and Mohammadreza Nasiriavanaki.** Optimization of light illumination for photoacoustic computed tomography of human infant brain. *Proceedings of SPIE (international society for optics and photonics) 10494, Photons Plus Ultrasound: Imaging and Sensing*, 104946U, doi: 10.1117/12.2291592, 2018
30. **Susanne C. Brenner, Hengguang Li, and Li-yeng Sung.** Multigrid methods for saddle point problems: Oseen system. *Computers & Mathematics with Applications*, 74: 2056 - 2067, 2017
31. **Serge Nicaise, Hengguang Li, and Anna Mazzucato.** Regularity and a priori error analysis of a Ventcel problem in polyhedral domains. *Mathematical Methods in the Applied Sciences*, 40: 1625 - 1636, 2017
32. **Hengguang Li.** The W_p^1 stability of the Ritz projection on graded meshes. *Mathematics of Computation*, 86: 49 - 74, 2017
33. **Constantin Bacuta, Hengguang Li, and Victor Nistor.** Differential operators on domains with conical points: precise uniform regularity estimates. *Romanian Journal of Pure and Applied Mathematics*, 62: 383 - 411, 2017
34. **Guanghao, Jin, Young Ju Lee and Hengguang Li.** Regularity and optimal finite element methods in W_p^1 on polygonal domains. *Computers & Mathematics with Applications*, 74: 2089 - 2105, 2017
35. **Hengguang Li and Qinghui Zhang.** Optimal quadrilateral finite elements on polygonal domains. *Journal of Scientific Computing*, 70: 60 - 84, 2017
36. **Beichuang Deng, Seongho Kim, Hengguang Li, Elisabeth Heath, and Xiang Zhang.** Global peak alignment for comprehensive two-dimensional gas chromatography mass spectrometry using point matching algorithms. *Journal of Bioinformatics and Computational Biology*, 14: 16500321 - 165003218, 2016
37. **Guanghao Jin, Hengguang Li, Qinghui Zhang, and Qingsong Zou.** Linear and quadratic finite volume methods on triangular meshes for elliptic equations with singular solutions. *International Journal of Numerical Analysis and Modeling*, 13: 244 - 264, 2016
38. **Hengguang Li.** Regularity and multigrid analysis for Laplace-type axisymmetric equations. *Mathematics of Computation*, 84: 1113 - 1144, 2015

39. **Hengguang Li** and **Jeffrey S. Owall**. A posteriori eigenvalue error estimation for the Schrödinger operator with inverse square potential. *Discrete and Continuous Dynamical System Series B*, 20: 1377 - 1391, 2015
40. **Susanne C. Brenner**, **Hengguang Li**, and **Li-yeng Sung**. Multigrid methods for saddle point problems: Stokes and Lamé systems. *Numerische Mathematik*, 128: 193 - 216, 2014
41. **Hengguang Li** and **Jeffrey S. Owall**. A posteriori error estimation of hierarchical type for the Schrödinger operator with the inverse square potential on graded meshes. *Numerische Mathematik*, 128: 707 - 740, 2014
42. **Gerard Awanou** and **Hengguang Li**. Error analysis of a mixed finite element method for the Monge-Ampère equation. *International Journal of Numerical Analysis and Modeling*, 11: 745 - 761, 2014
43. **Eugenie Hunsicker**, **Hengguang Li**, **Victor Nistor**, and **Ville Uski**. Analysis of Schrödinger operators with inverse square potentials II: FEM and approximation of eigenfunctions in the periodic case. *Numerical Methods for Partial Differential Equations*, 30: 1130 - 1151, 2014
44. **Hengguang Li**, **Victor Nistor** and **Yu Qiao**. Uniform shift estimates for transmission problems and optimal rates of convergence for the parametric Finite Element Method. *Numerical Analysis and Its Applications, Lecture Notes in Computer Science*, 8236: 12 - 23, Springer-Verlag Berlin Heidelberg, 2013
45. **Hengguang Li** and **Victor Nistor**. LNG_FEM: Graded meshes on domains of polygonal structures. *Recent Advances in Scientific Computing and Applications, Contemporary Mathematics*, 586: 239 - 246, American Mathematical Society, Providence, RI, 2013
46. **Young Ju Lee** and **Hengguang Li**. Axisymmetric Stokes equations in polygonal domains: regularity and finite element approximations. *Computers & Mathematics with Applications*, 64: 3500 - 3521, 2012
47. **Constantin Bacuta**, **Hengguang Li**, and **Victor Nistor**. Anisotropic graded meshes and quasi-optimal rates of convergence for the FEM on polyhedral domains in 3D. *ECCOMAS 2012 - European Congress on Computational Methods in Applied Sciences and Engineering, e-Book Full Papers*, 9003 - 9014, 2012
48. **Eugenie Hunsicker**, **Hengguang Li**, **Victor Nistor**, and **Ville Uski**. Analysis of Schrödinger operators with inverse square potentials I: regularity results in 3D. *Bulletin Mathématique de la Société des Sciences Mathématiques de Roumanie*, 55: 157 - 178, 2012
49. **Hengguang Li**. A note on the conditioning of a class of generalized finite element methods. *Applied Numerical Mathematics*, 62: 754 - 766, 2012
50. **Ivo Babuška**, **Uday Banerjee**, and **Hengguang Li**. The effect of numerical integration on the finite element approximation of linear functionals. *Numerische Mathematik*, 117: 65 - 88, 2011
51. **Young Ju Lee** and **Hengguang Li**. On stability, accuracy, and fast solvers for the finite element approximations of the axisymmetric Stokes problem by Hood-Taylor elements. *SIAM Journal on Numerical Analysis*, 49: 668 - 691, 2011
52. **Hengguang Li**. Finite element analysis for the axisymmetric Laplace operator on polygonal domains. *Journal of Computational and Applied Mathematics*, 235: 5155 - 5176, 2011
53. **Hengguang Li**, **Anna Mazzucato**, and **Victor Nistor**. Analysis of the Finite Element Method for transmission/mixed boundary value problems on general polygonal domains. *Electronic Transactions on Numerical Analysis*, 37: 41 - 69, 2010
54. **Long Chen** and **Hengguang Li**. Superconvergence of Gradient Recovery Schemes on graded meshes for corner singularities. *Journal of Computational Mathematics*, 28: 11 - 31, 2010
55. **Hengguang Li**. A-priori analysis and the finite element method for a class of degenerate elliptic equations. *Mathematics of Computation*, 78: 713 - 737, 2009

56. **Hengguang Li** and **Victor Nistor**. Analysis of a modified Schrödinger operator in 2D: regularity, index, and FEM. *Journal of Computational and Applied Mathematics*, 224: 320 - 338, 2009
57. **James Brannick**, **Hengguang Li**, and **Ludmil Zikatanov**. Uniform convergence of the multigrid V-cycle on graded meshes for corner singularities. *Numerical Linear Algebra with Applications*, 15: 291 - 306, 2008
58. **Hengguang Li**. Uniform convergence of the multigrid V-cycle on graded meshes. *Proceedings of the Thirteenth Copper Mountain Conference on Multigrid Methods*, 2007

• Submitted Manuscripts

59. **Hengguang Li**. From inference to incompleteness: the limits of formal systems and the echo in modern AI.
60. **Xihao Zhang**, **Hengguang Li**, **Peimeng Yin**, and **Nianyu Yi**. Towards C^0 finite element methods for the biharmonic equation under general boundary conditions.
61. **Naresh Mahabir**, **Meina Zhu**, and **Hengguang Li**. Scalable multimedia-integrated flipped instruction in undergraduate mathematics: a quasi-experimental study.
62. **Zheng Ren**, **Ling Lu**, **Hengguang Li**, **Yuke Wang**, **Chong Hu**, **Pengju Yang** and **Yong Niu**. DCPRE: a dual-channel entity relation extraction framework with relation perception.
63. **Jixiang Fang**, **Ling Lu**, **Hengguang Li**, **Xiaoyang Liu**, **Dan Huang**, and **Yinong Chen**. MGIT: multi-granularity implicit temporal framework for knowledge graph question answering.
64. **Hengguang Li** and **Peimeng Yin**. High-order C^0 finite element methods for the biharmonic problem with Navier boundary conditions.

Professional Affiliations

- American Mathematical Society (AMS)
- Society for Industrial and Applied Mathematics (SIAM)

Synergistic Activities

• Committee Services

- **Committee on Academic Sponsors**, Simons Laufer Mathematical Sciences Institute (formerly known as Mathematical Sciences Research Institute (MSRI)) on UC Berkeley campus (2017 - 2025).
- **Strategic Plan Refresh Committee**, Wayne State University (2025). This is a campus-wide committee that guides the process to refresh the University's strategic plan and ensure WSU has a clear, thoughtful forward-facing strategic plan that is both relevant and adaptable to our current context and reflects where we are headed as we launch our comprehensive fundraising campaign in 2026. The committee was chaired by the Provost and included the Board of Governors, the presidents of the Academic Senate and Student Senate, and other key contributors across the university.
- **Chair of the WSU AI Center Committee**, Wayne State University (2025).
- **Academic Program Review (APR) Reviewer for the Environmental Science and Geology program**, Wayne State University (2025).
- **Chair of the Public Health Department Chair Review Committee**, Wayne State University (2024 - 2025).

- **University Exploratory Committee on AI, Machine Learning, and Big Data Initiatives**, Wayne State University (2023 - 2024).
- **College Research Committee**, College of Liberal Arts and Sciences, Wayne State University (2023 - 2025).
- **Employee Engagement Group Advisory Council**, Wayne State University (2023 - 2024).
- **Chair of the Physics and Astronomy Department Chair Search Committee**, Wayne State University (2023).
- **Nexus Committee for STEM Inclusion Initiatives**, Wayne State University (2022 - 2023).
- **Facilitator of the Grant Writing Workshop**, College of Liberal Arts and Sciences, Wayne State University (2022).
- **Policy Committee on Promotion for Teaching Faculty**, Wayne State University (2021 - 2022).
- **Chair of the Chemistry Department Chair Review Committee**, Wayne State University (2020 - 2021).
- **PI Conference Proposal Review Committee**, Institute for Mathematics and its Applications, University of Minnesota (2020).
- **Program Review Committee**, Michigan Association of State Universities (MASU) (2019, 2020).
- **Scientific Research Promotion Committee**, the Scientific Research Office, Chinese Academy of Sciences (2019).
- **Academic Program Review External Committee** for the Fariborz Maseeh Department of Mathematics and Statistics, Portland State University (2019).
- **STEM Innovation Learning Center Steering Committee**, Wayne State University (2018 - 2019).
- **Oak Ridge Associated Universities Powe Junior Faculty Award Review Committee**, Office of the Vice President for Research, Wayne State University (2018).
- **Other Committees at Wayne State University**
 - * **University/College committee members**: University Research Grant Selection Committee (2017); College of Liberal Arts and Sciences Council of Chairs (2017 - present)
 - * **Department committee chairs**: Strategic Plan Committee (2025); Personnel Committee (2017 - present); Faculty Search Committee (2017 - present); Salary Committee (2017 - present); Planning and Advisory Board (2018 - present)
 - * **Department committee members**: Graduate Committee (2015 - 2016); Managing Committee of the Computer Lab (2012 - 2014); Advising Committee (2013 - 2015); Organizer of Math Colloquium (2015 - 2017); Organizer of Applied Mathematics Seminar (2012 - 2017)

• Media and Public Engagement

- **Moderator**, Wayne State University Panel: “Rethinking PhD education with AI”, 2026
- **Moderator**, Wayne State University *Year of Focus* Panel: “AI in Action”, 2026
- **WJR Radio Interview** on *the rise of AI-generated fake phone calls and scams*, 2025
- **Panelist**, Wayne State University *Research Grand Challenges* Launch Event, 2025
- Featured in Wayne State University “Welcome Back” video, Academic Year 2025 - 2026
- **Interview with Crain’s Detroit Business** on mathematical modeling of COVID-19: *Pandemic modeling is an imperfect, but important tool*, 2020

• Other Professional Services

- **NSF Review Panel** for a program on *Digital Twins and Biotechnology*, National Science Foundation, 2025
- **NSF Review Panel** for a program on *Computational Science and Mathematics*, National Science Foundation, 2024
- **NSF Review Panel** for a program on *Experiential Learning for Cutting-Edge Technologies with a Focus on Artificial Intelligence*, National Science Foundation, 2023
- **NSF Review Panel** for a program on *Computational Engineering and Data Science*, National Science Foundation, 2013, 2015
- **Editorial Board**: *International Journal of Numerical Methods and Applications*, 2013 - 2021
- **Organizer** of the symposium "*Recent Developments for Numerical Methods for PDEs*" at the *SIAM New York-New Jersey-Pennsylvania Section Annual Meeting*, Penn State University, 11/2025
- **Organizer** of the symposium "*Recent Developments in Numerical and Analytical Approaches to PDEs*" at the *SIAM Annual Meeting*, Spokane, WA, 07/2024
- **Organizer** of the symposium "*PDE Eigenvalue Problems: Computational Modeling and Numerical Analysis*" at the *10th International Congress on Industrial and Applied Mathematics (ICIAM)*, Tokyo, Japan, 08/2023
- **Organizer** of the *2022 SIAM Great Lakes Section Annual Meeting*, Wayne State University, 09/2022
- **Organizer** of the symposium "*Multilevel Discretization of Mixed Variational Formulations*" at the *15th World Congress on Computational Mechanics & 8th Asian Pacific Congress on Computational Mechanics*, Yokohama, Japan, 08/2022
- **Organizer** of the session "*Recent Advances in Numerical Methods for PDEs*" at the *AMS Spring Central and Western Joint Sectional Meeting*, University of Hawaii at Manoa, 03/2019
- **Organizer** of the *2018 SIAM Great Lakes Section Annual Meeting*, Wayne State University, 04/2018
- **Organizer** of the symposium "*Saddle Point and Mixed Discretization of Variational Problems*" at the *14th U.S. National Congress on Computational Mechanics*, Montréal, Canada, 07/2017
- **Organizer** of the symposium "*Multilevel Methods for Saddle Point Problems*" at the *Mathematics of Finite Elements and Applications*, Brunel University, UK, 06/2016
- **Organizer** of the symposium "*Recent Advances in Numerical Approximation of Singular Solutions*" at the *8th International Congress on Industrial and Applied Mathematics*, Beijing, China, 08/2015
- **Organizer** of the symposium "*Higher Order Generalized Finite Element Methods for Problems with Singularities*" at the *joint 11th World Congress on Computational Mechanics, the 5th European Conference on Computational Methods, and the 6th European Conference on Computational Fluid Dynamics*, Barcelona, Spain, 07/2014
- **Organizer** of the *Finite Element Circus*, Wayne State University, 03/2014
- **Organizer** of *Copper Country Workshop on Numerical Analysis and Inverse Problems*, Michigan Technological University, 08/2013
- **Organizer** of the symposium "*Finite Element Methods for Equations with Singularities*" at *SIAM Annual Meeting*, San Diego, 07/2013
- **Organizer** of *SIAM Great Lakes Section Spring Meeting 2012 "NUMPDES: Numerical Solution of Partial Differential Equations"*, Wayne State University, 04/2012
- **Organizer** of the symposium "*Numerical Treatment of Singularities of PDEs*" at the *11th U.S. National Congress on Computational Mechanics*, Minneapolis, 08/2011
- **Organizer** of the symposium "*GFEM and Numerical Treatment of Singularities*" at the *IV European Conference on Computational Mechanics*, Paris, France, 05/2010

- **Director and Founder** of the *Computational Mathematics and Applications Lab (CMAL)*, Wayne State University, 2015 - 2018
- **Reviewer** for *Mathematical Reviews*, American Mathematical Society, 2013 - present
- **Reviewer** for *Mathematics of Computation*, *SIAM Journal on Numerical Analysis*, *Numerische Mathematik*, *SIAM Journal on Mathematical Analysis*, *Advances in Computational Mathematics*, *Journal of Computational and Applied Mathematics*, *Numerical Algorithms*, *Computer Methods in Applied Mechanics and Engineering*, *Computers and Mathematics with Applications*, *Mathematical Models and Methods in Applied Sciences*, *Journal of Computational Mathematics*, *Applied Mathematics and Computation*, *Applied Numerical Mathematics*, *International Journal of Numerical Analysis & Modeling*, *Mathematical Methods in the Applied Sciences*, *Mathematical Modeling and Analysis*, *Advances in Difference Equations*, *Central European Journal of Mathematics*, *Discrete and Continuous Dynamical Systems - Series B*, *Journal of Scientific Computing*, *Computer Methods in Biomechanics and Biomedical Engineering*, *Engineering Analysis with Boundary Elements*, and *International Journal of Mathematics and Mathematical Sciences*
- **Lecturer** in the *Summer School on the Multiscale Adaptive Method*, Peking University, China, 2007
- **Member** of the *Graduate Teaching Assistant Training Team*, Penn State University, 2006 - 2007
- **Judge** of *Pennsylvania Junior Academy of Science (PJAS) 71st Annual State Meeting*, Mathematics and Computer Sciences sections, 2005

Students and Scholars

- **Junior Faculty Sponsored and Mentored**

Kosuke Sugita (Postdoc), Wayne State University, 08/2023 - 07/2025

Ph.D. in Mathematics (2023), New Jersey Institute of Technology

Current position: Research Scientist at Fujitsu, Japan

Peimeng Yin (Postdoc), Wayne State University, 08/2019 - 07/2021

Ph.D. in Mathematics (2019), Iowa State University

Current position: Assistant Professor (Tenure Track) at The University of Texas at El Paso

Xiang Wan (Research Assistant Professor), Wayne State University, 08/2017 - 05/2019

Ph.D. in Mathematics (2017), University of Virginia

Current position: Assistant Professor (Tenure Track) at Loyola University Chicago

Reza Mollapourasl (Visiting Assistant Professor), Wayne State University, 01/2017 - 08/2017

Ph.D. in Applied Mathematics (2009), Iran University of Science and Technology

Current position: Assistant Professor (Tenure Track) at Farmingdale State College-SUNY

Xun Lu (Postdoc), Wayne State University, 08/2016 - 07/2017

Ph.D. in Mathematics (2016), City University of Hong Kong

Current position: Associate Professor at Xiangtan University, China

Li Guo (Postdoc), Wayne State University, 08/2015 - 07/2016

Ph.D. in Mathematics (2015), University of Science and Technology of China

Current position: Data Scientist at Lowe's Companies, Mooresville, NC

- **Visiting Scholars Sponsored**

Victor Nistor, University of Lorraine, France, 01/2022

Qinghui Zhang, Sun Yat-sen University, China, 01/2019 - 04/2019

Aixiang Chen, Guangdong University of Finance and Economics, China, 09/2016 - 08/2017

Serge Nicaise, Polytechnic University of Hauts-de-France, France, 10/2015

Yu Qiao, Shaanxi Normal University, China, 09/2013 - 02/2014

- **Ph.D. Students**

Charuka Wickramasinghe, Wayne State University, 2022

Dissertation: A C^0 Finite Element Method for the Biharmonic Problem in a Polygonal Domain

Current position: Postdoc Scholar at Penn State University

Priyanka Ahire, Wayne State University, expected graduation year: 2026

Fatemah Alhamede, Wayne State University, expected graduation year: 2026

- **Master's Students**

Robert Will, Wayne State University, 2025

Research Topic: Solving Systems of Differential Equations Using Feed Forward Neural Networks

Hasan Abdul Kadhim Hussein, Wayne State University, 2016

Research Topic: Numerical Investigation for PDEs with Distributional Data

- **Ph.D. Thesis Committee**

Amer Rawashdeh (Mathematics), Wayne State University, 2026

Qian Zhang (Computational Math), Wayne State University, 2021

Xiangrui Li (Computer Science), Wayne State University, 2020

Eric Malitz (Mathematics), University of Illinois at Chicago, 2019

Lu Wang (Computer Science), Wayne State University, 2019

Lewei Zhao (Computational Math), Wayne State University, 2019

Zeyu Zhou (Computational Math), Wayne State University, 2019

Beichuang Deng (Computational Math), Wayne State University, 2018

Yu Chen (Computer Science), Wayne State University, 2018

Alex Winney (Computational Chemistry), Wayne State University, 2017

Ren Zhao (Computational Math), Wayne State University, 2017

Li Fan (Computational Math), Wayne State University, 2013

Talks

- **Invited Talks**

- Humanities Center Symposium on AI, Wayne State University, 03/2026

- Applied Mathematics Seminar, Syracuse University, 02/2026

- Workshop on Numerical Methods for Spectral Problems: Theory and Applications, Urabandai, Fukushima, Japan, 12/2025

- Humanities Action Day, Wayne State University, 11/2025

- Symposium "Recent Developments for Numerical Methods for PDEs", SIAM New York-New Jersey-Pennsylvania Section Annual Meeting, Penn State University, 11/2025

- Academy of Scholars, Wayne State University, 11/2025

- Linguistics Colloquium, Wayne State University, 10/2025

- Applied and Interdisciplinary Mathematics Seminar, University of Michigan, 11/2024

- Plenary Speaker at the SIAM Great Lakes Section Annual Meeting, Purdue University Northwest, 10/2024

- Numerical Methods for Spectral Problems: Theory and Applications, Guiyang, China, 08/2024

- Enchanting Mathematics, a China Society for Industrial and Applied Mathematics (CSIAM) Conference, Northeastern University, China, 07/2024
- Applied Mathematics Seminar, Institute of Computational Mathematics and Scientific/Engineering Computing (ICMSEC), Chinese Academy of Sciences, China, 07/2024
- Student Math & Applications Seminar, Wayne State University, 12/2023
- Symposium "Recent Development in Advanced Numerical Methods for PDEs", AMS Fall Central Sectional Meeting, Creighton University, 10/2023
- Applied Mathematics Seminar, Institute of Computational Mathematics and Scientific/Engineering Computing (ICMSEC), Chinese Academy of Sciences, China, 08/2023
- Computational Mathematics Seminar, Sun Yat-sen University, China, 08/2023
- Applied Mathematics Seminar, Guangzhou University, China, 08/2023
- Computational Mathematics Seminar, South China Normal University, China, 08/2023
- Computational and Applied Math Colloquium, Penn State University, 04/2023
- Symposium "Special Session on Modern Trends in Numerical PDEs", AMS Spring Central Sectional Meeting, University of Cincinnati, 04/2023
- Singular Days, Nice, France, 11/2022
- PDEs with Singularities, a conference in honor of the 60th birthday of Serge Nicaise, Polytechnic University of Hauts-de-France, France, 11/2021
- Math Colloquium, Iowa State University, 11/2021
- Workshop in honor of Ivo Babuška's 95th birthday, Albuquerque, NM, 10/2021
- Postdoc Association, Wayne State University, 07/2021
- International Conference on Eigenvalue Problems and Related Topics (online), organized by Beijing Computational Science Research Center, 05/2021
- Math Colloquium, Florida International University, 02/2021
- Math Colloquium, Old Dominion University, 10/2020
- SIAM Annual Meeting, Toronto, Canada, 07/2020
- International Conference on Eigenvalue Problems and Related Topics, Beijing, China, 06/2020
- Invited Lecture (45 minutes), International Congress of Chinese Mathematicians, Beijing, China, 06/2019
- Applied Mathematics Seminar, Institute of Computational Mathematics and Scientific/Engineering Computing (ICMSEC), Chinese Academy of Sciences, China, 06/2019
- Computational Mathematics Seminar, Beijing Computational Science Research Center (CSRC), China, 06/2019
- Computational Mathematics Seminar, Sun Yat-sen University (Zhuhai Campus), China, 06/2019
- Math Colloquium, Guangdong University of Finance and Economics, China, 06/2019
- International Conference on Recent Advances of Numerical Methods for Nonlinear Problems, Hangzhou, China, 06/2019
- Numerical Analysis and PDE Seminar, University of Delaware, 05/2019
- Numerical Methods Seminar, Worcester Polytechnic Institute, 05/2019
- Symposium "Numerical Methods for PDEs and Applications", Joint Mathematics Meetings, Baltimore, 01/2019
- Math Seminar Lecture, Polytechnic University of Hauts-de-France, France, 11/2018

- Symposium "New Trends in Numerical Methods for PDEs: Theory and Applications", AMS Fall Central Sectional Meeting, University of Michigan, 10/2018
- Symposium "Recent Trends in Discretization for Linear and Nonlinear Problems", SIAM Annual Meeting, Portland, Oregon, 07/2018
- Symposium "Recent Advances in Finite Element Methods for Partial Differential Equations", AMS Spring Central Sectional Meeting, Ohio State University, 03/2018
- Symposium "Advances in Finite Element Approximation", Joint Mathematics Meetings, San Diego, 01/2018
- Symposium "Recent Trends in Analysis of Numerical Methods for Partial Differential Equations", Joint Mathematics Meetings, San Diego, 01/2018
- Symposium "Recent Developments in Numerical Methods for PDEs and Their Applications", SIAM Conference on Analysis of Partial Differential Equations, Baltimore, 12/2017
- Symposium "Numerical Solutions of Differential Equations", Third International Conference on Engineering and Computational Mathematics (ECM2017), Hong Kong Polytechnic University, 06/2017
- Applied Math Seminar, South China Normal University, China, 05/2017
- Math Colloquium, Guangdong University of Finance and Economics, China, 05/2017
- Computational Mathematics Seminar, Sun Yat-sen University, China, 05/2017
- Computational Mathematics Seminar, Beijing Computational Science Research Center (CSRC), China, 05/2017
- International Conference on Numerical Analysis and Inverse Problems, Michigan Technological University, 08/2016
- Singular Days, Universite de Lorraine, France, 06/2016
- Math Colloquium, Texas State University, 03/2016
- Applied Math Seminar, Ohio State University, 12/2015
- Applied Math Seminar, Michigan State University, 10/2015
- Math Colloquium, Central Michigan University, 09/2015
- Workshop on Finite Element Methods, Beijing Institute for Scientific and Engineering Computing, Beijing University of Technology, China, 08/2015
- Computational Mathematics Seminar, South China Normal University, China, 08/2015
- Statistically Defensible Test & Evaluation Meeting, Air Force Test Center, Edwards, CA, 07/2015
- Symposium "Physics-compatible Discretization on Multiphysics Systems and Efficient Multi-level Solver", SIAM Conference on Computational Science & Engineering, Salt Lake City, 03/2015
- Session on Recent Advances in Finite Element and Discontinuous Galerkin Methods for Partial Differential Equations, AMS Central Spring Sectional Meeting, Michigan State University, 03/2015
- Condensed Matter Physics Seminar, Wayne State University, 10/2014
- Computational Mathematics Seminar, Beijing International Center for Mathematical Research, Peking University, China, 05/2014
- Computational Mathematics Seminar, College of Mathematics, Sun Yat-sen University, China, 04/2014
- Applied Mathematics Seminar, College of Mathematics and Information Science, Shaanxi Normal University, China, 04/2014

- Computational Mathematics Seminar, College of Mathematics and Information Science, Shaanxi Normal University, China, 04/2014
- Computational Mathematics Seminar, College of Mathematics, Sichuan University, China, 04/2014
- Computational Mathematics Seminar, Institute of Computational Mathematics and Scientific/Engineering Computing, Chinese Academy of Sciences, China, 04/2014
- Copper Country Workshop on Numerical Analysis and Inverse Problems, Michigan Technological University, 08/2013
- Applied and Computational Mathematics Seminar, University of Kentucky, 05/2013
- Math Colloquium, University of Michigan-Dearborn, 04/2013
- Math Colloquium, Oakland University, 10/2012
- Symposium on Multilevel and Adaptive Methods for Solving Complex Systems, Eighth International Conference on Scientific Computing and Applications, University of Nevada, 04/2012
- Numerical Analysis and PDE Seminar, University of Delaware, 04/2012
- Scientific Computing Seminar, Brown University, 10/2011
- Applied Math Seminar, Sun Yat-sen University, 03/2011
- Applied Math Seminar, City University of Hong Kong, 03/2011
- Math Colloquium, Wayne State University, 03/2011
- Symposium on Theory and Application of Adaptive and Multilevel Methods, 20th International Conference on Domain Decomposition Methods, UC San Diego, 02/2011
- CCMA Luncheon Seminar, Penn State University, 02/2011
- Computational and Applied Mathematics Colloquium, Penn State University, 02/2011
- Special Session on Mathematics of Computation, 2011 Joint Mathematics Meetings, New Orleans, Louisiana, 01/2011
- Penn State-Göttingen International Summer School in Mathematics, 08/2010
- Session on Differential Equations and Applications, AMS Spring Central Meeting, St. Paul, Minnesota, 04/2010
- Applied Math Seminar, City University of Hong Kong, Hong Kong, 02/2010
- Applied and Computational Math Seminar, University of California, Irvine, 01/2010
- Advances in Boundary Integral Equations: A Conference in Honor of George C. Hsiao's 75th Birthday, University of Delaware, 08/2009
- Session on Theory and Numerics of Boundary-Domain Integral Equations/ Finite element approximation of singularities, Mathematics of Finite Elements and Applications (MAFELAP), Brunel University, England, 06/2009
- Session on Mathematical Aspects of Finite Element Methods, MAFELAP, Brunel University, England, 06/2009
- The Second International Conference on the Advances of Hilbert-Huang Transform and Its Applications, Sun Yat-sen University, 12/2008
- Analysis and PDE Seminar, University of Delaware, 11/2008
- Workshop on Quantitative Cancer Modelling, Fields Institute, Canada, 08/2008
- Applied Math Seminar, Syracuse University, 04/2008
- Session on Finite Element Methods and Applications, AMS Spring Central Meeting, Indiana University, 04/2008
- Special Math Colloquium, Clemson University, 02/2008

- Session on Finite Element Methods for Singular Solutions, International Conference on Spectral and High Order Methods, Beijing, China, 06/2007
- Interdisciplinary Seminars on Differential Equations, Continuum Mechanics and Numerical Methods, Penn State University, 05/2007
- The 13th Copper Mountain Conference on Multigrid Methods, Copper Mountain, Colorado, 03/2007

• **Other Conference and Seminar Talks**

- Session on Recent Developments in Numerical and Analytical Approaches to PDEs, SIAM Annual Meeting, Spokane, WA, 07/2024
- Finite Element Circus, University of Notre Dame, 10/2023
- Applied Math Seminar, Wayne State University, 10/2023
- Session on PDE Eigenvalue Problems: Computational Modeling and Numerical Analysis, 10th International Congress on Industrial and Applied Mathematics (ICIAM), Tokyo, Japan, 08/2023
- Session on Multilevel Discretization of Mixed Variational Formulations, 15th World Congress on Computational Mechanics & 8th Asian Pacific Congress on Computational Mechanics, Yokohama, Japan, 08/2022
- Virtual Finite Element Circus, 04/2021
- SIAM Great Lakes Section Spring Meeting, Oakland University, 04/2021
- Session on Recent Advances in Numerical Methods for PDEs, AMS Spring Central and Western Joint Sectional Meeting, University of Hawaii at Manoa, 03/2019
- SIAM Great Lakes Section Spring Meeting, Wayne State University, 04/2018
- Finite Element Circus, University of Maryland, Baltimore County, 10/2017
- Symposium on Saddle Point and Mixed Discretization of Variational Problems, 14th U.S. National Congress on Computational Mechanics, Montréal, Canada, 07/2017
- SIAM Great Lakes Section Spring Meeting, Oakland University, 04/2017
- Finite Element Circus, Rutgers University, 04/2017
- Finite Element Circus, Worcester Polytechnic Institute, 10/2016
- Finite Element Circus, University of Maryland, 04/2016
- Session on Recent Advances in Numerical Approximation of Singular Solutions, 8th International Congress on Industrial and Applied Mathematics, Beijing, China, 08/2015
- Midwest Numerical Analysis Day, Wright State University, 04/2015
- Finite Element Circus, George Mason University, 04/2015
- Finite Element Circus, University of Minnesota, 10/2014
- Finite Element Circus, Wayne State University, 03/2014
- Symposium on Finite Element Methods for Equations with Singularities, SIAM Annual Meeting, San Diego, California, 07/2013
- Finite Element Circus, Louisiana State University, 03/2013
- Finite Element Circus, University of Pittsburgh, 10/2012
- Finite Element Circus, Rutgers University, 04/2012
- Math Colloquium, Wayne State University, 11/2011
- Applied Math Seminar, Wayne State University, 11/2011

- PDE Seminar, Wayne State University, 09/2011
- IMA Postdoc Seminar, University of Minnesota, 02/2011
- Finite Element Circus, Brown University, 05/2010
- CCMA PDEs and Numerical Methods Seminar Series, Penn State University, 10/2009
- Finite Element Circus, The University of Tennessee, 10/2009
- Interdisciplinary Seminar on PDEs and Their Applications, Penn State University, 07/2009
- The Eighth Mississippi State-UAB Conference on Differential Equations and Computational Simulations, Mississippi State University, 05/2009
- Finite Element Circus, University of Delaware, 04/2009
- Applied Math Seminar, Syracuse University, 04/2009
- Workshop on Meshless Methods, Generalized Finite Element Methods and Related Approaches, University of Maryland, 03/2009
- Hausdorff Center for Mathematics, University of Bonn, Germany, 01/2009
- Applied Math Seminar, Syracuse University, 10/2008
- Applied Math Seminar, Syracuse University, 09/2008
- CNA Summer School, Carnegie Mellon University, 06/2008
- Finite Element Circus/Rodeo, Louisiana State University, 03/2008
- Finite Element Circus, Cornell University, 10/2007
- CCMA Luncheon Seminar, Penn State University, 09/2007
- Poster Session, 6th International Congress on Industrial and Applied Mathematics, Zürich, Switzerland, 07/2007
- Contributed Talk Session, 6th International Congress on Industrial and Applied Mathematics, Zürich, Switzerland, 07/2007
- Finite Element Circus, University of Maryland, 04/2007
- CCMA Seminar on PDE & Numerical Methods, Penn State University, 11/2006
- Finite Element Circus, Penn State University, 11/2006
- CCMA Luncheon Seminar, Penn State University, 09/2006
- CNA Summer School, Carnegie Mellon University, 06/2006
- Graduate Exhibition Competition, Penn State University, 03/2006
- Second Annual Computation Day, Penn State University, 02/2006

Software Development

- LNG_FEM (v.1.0), a software package in C for generating graded meshes and for solving elliptic PDEs with singular solutions in arbitrary 2-D domains for different boundary conditions (available at <https://www.hli.wayne.edu/research.htm>).

Course Development

- New course "AI and the Conscious Mind", joint work with Eric Hiddleston (Wayne State Philosophy), 2024

Teaching Experience

- MAT/PHI 1400 "AI and the Conscious Mind", Wayne State University, Spring 2025
- MAT 9995 "Doctoral Dissertation Research and Direction", Wayne State University, Spring 2025
- MAT 9995 "Doctoral Dissertation Research and Direction", Wayne State University, Fall 2024
- MAT 7990 "Directed Study", Wayne State University, Summer 2024
- MAT 9995 "Doctoral Dissertation Research and Direction", Wayne State University, Spring 2024
- MAT 9994 "Doctoral Dissertation Research and Direction IV", Wayne State University, Spring 2024
- MAT 9995 "Doctoral Dissertation Research and Direction", Wayne State University, Fall 2023
- MAT 9993 "Doctoral Dissertation Research and Direction III", Wayne State University, Fall 2023
- MAT 9995 "Doctoral Dissertation Research and Direction", Wayne State University, Summer 2023
- MAT 9992 "Doctoral Dissertation Research and Direction II", Wayne State University, Spring 2023
- MAT 9995 "Doctoral Dissertation Research and Direction", Wayne State University, Spring 2023
- MAT 9991 "Doctoral Dissertation Research and Direction I", Wayne State University, Fall 2022
- MAT 9995 "Doctoral Dissertation Research and Direction", Wayne State University, Fall 2022
- MAT 9994 "Doctoral Dissertation Research and Direction IV", Wayne State University, Spring 2022
- MAT 9995 "Doctoral Dissertation Research and Direction", Wayne State University, Spring 2022
- MAT 7990 "Directed Study", Wayne State University, Spring 2022
- MAT 9995 "Doctoral Dissertation Research and Direction", Wayne State University, Fall 2021
- MAT 9994 "Doctoral Dissertation Research and Direction IV", Wayne State University, Spring 2021
- MAT 7990 "Directed Study", Wayne State University, Fall 2020
- MAT 9992 "Doctoral Dissertation Research and Direction II", Wayne State University, Spring 2020
- MAT 7990 "Directed Study", Wayne State University, Spring 2020
- MAT 9990 "Pre-Doctoral Candidacy Research", Wayne State University, Fall 2019
- MAT 7990 "Directed Study", Wayne State University, Fall 2019
- MAT 7990 "Directed Study", Wayne State University, Spring 2019
- MAT 7990 "Directed Study", Wayne State University, Fall 2018
- MAT 7990 "Directed Study", Wayne State University, Spring 2018
- MAT 7990 "Directed Study", Wayne State University, Spring 2017
- MAT 7240 "Advanced Partial Differential Equations", Wayne State University, Spring 2017
- MAT 5100 "Numerical Methods I", Wayne State University, Spring 2017
- MAT 2020 "Calculus II", Wayne State University, Fall 2016
- MAT 5070 "Elementary Analysis", Wayne State University, Summer 2016
- MAT 7990 "Directed Study", Wayne State University, Summer 2016
- MAT 7999 "Master's Essay Direction", Wayne State University, Spring 2016
- MAT 7999 "Master's Essay Direction", Wayne State University, Fall 2015
- MAT 2020 "Calculus II", Wayne State University, Fall 2015
- MAT 2250 "Linear Algebra", Wayne State University, Fall 2015
- MAT 5990 "Directed Study", Wayne State University, Spring 2015

- MAT 7990 “Directed Study”, Wayne State University, Spring 2015
- MAT 2350 “Elementary Differential Equations”, Wayne State University, Spring 2015
- MAT 7990 “Directed Study”, Wayne State University, Fall 2014
- MAT 2030 “Calculus III”, Wayne State University, Fall 2014
- MAT 5700 “Introduction to Probability Theory”, Wayne State University, Summer 2014
- MAT 7220 “Advanced Numerical Analysis”, Wayne State University, Spring 2014
- MAT 2350 “Elementary Differential Equations”, Wayne State University, Spring 2014
- MAT 2030 “Calculus III”, Wayne State University, Fall 2013
- MAT 7230 “Finite Element Methods”, Wayne State University, Fall 2013
- MAT 5700 “Introduction to Probability Theory”, Wayne State University, Summer 2013
- MAT 7990 “Directed Study”, Wayne State University, Spring 2013
- MAT 2010 “Calculus I”, Wayne State University, Spring 2013
- MAT 2020 “Calculus II”, Wayne State University, Spring 2013
- MAT 5100 “Numerical Methods I”, Wayne State University, Fall 2012
- MAT 5700 “Introduction to Probability Theory”, Wayne State University, Summer 2012
- MAT 2020 “Calculus II”, Wayne State University, Spring 2012
- MAT 2010 “Calculus I”, Wayne State University, Fall 2011
- MAT 397 “Calculus III”, Syracuse University, Spring 2010
- MAT 521 “Introduction to Probability and Statistics”, Syracuse University, Fall 2009
- MAT 285 “Life Sciences Calculus I”, Syracuse University, Fall 2009
- MAT 295 “Calculus I”, Syracuse University, Spring 2009
- MAT 221 “Elementary Probability and Statistics I”, Syracuse University, Fall 2008
- Math 471 “Geometry for Teachers”, Penn State University, Spring 2008
- Math 041 “Trigonometry and Analytic Geometry”, Penn State University, Fall 2007
- Math 022 “College Algebra II”, Penn State University, Spring 2005 - Spring 2007
- Math 110 “Techniques of Calculus I”, Penn State University, Fall 2004
- Math 022 “College Algebra II”, Penn State University, Fall 2003 - Summer 2004

Computer Skills

- \LaTeX , C/C++, MPI Parallel Computing, Matlab, HTML