Hemant Pendharkar
E-mail: pendharkar@alumni.unh.edu

EDUCATION

Ph.D. Mathematics, University of New Hampshire, Dissertation: Central Sequences and C* Algebras, 1999
M.Sc. 1994 & **B.Sc**. 1991, Mathematics, University of Bombay, India

ADMINISTRATION: Academic Affairs, Student Affairs, Information Technology

- **Associate Chair, Department of Mathematics and Statistics,** University of South Florida, 1/2019 -
- **University-wide Chair, Liberal Arts and Sciences (Gen Ed) Program:** Worcester State University 2011-13
- **Vice President for Academic Affairs:** Governor's School for Science and Mathematics, 2007-09
- **Associate Vice President for Student Affairs Fellow:** Worcester State University, 2006-07
- **IT-**Administration – UNIX System Administrator, UNH Mathematics Department, (TA) 1996-98

ADMINISTRATION: Faculty Affairs/Labor Relation/contract interpretation/conflict resolution – Faulty union leadership

- **Chair Statewide Grievance committee (Elected),** MSCA MA State University System-wide, 2014-18; re-elected 2018-20 I was the participating officer in grievance filings/hearings, labor charge/mediation/arbitration proceedings, and every aspect of contract interpretation and enforcement. I worked with attorneys on MOAs/MOUs; I was the custodian of such settlements.
- **Grievance Officer:** Worcester State University, 2011-18

POSITIONS: Academic

- **Professor**, Department of Mathematics and Statistics, University of South Florida; 12/20/2018 -
- **Professor (CS/MA):** Worcester State University, 9/2012 on; (joined: Assistant Professor: 1/2002; Tenured/Promoted: 9/2005)
- **Visiting Professor:** Israel Academic College/Clark University. COPACE, Israel; summers of 2009, 2010, 2011
- **Professor** (part time): Clark University, http://aleph0.clarku.edu/faculty/faculty.php, 9/2004 – 12/2018
- **Assistant Professor:** Elizabeth City State University; 08/1999-12/2001
- **Instructor**: Master of Science in Mathematics for Teachers, University of New Hampshire: Summers of 1996-99, 2002-03

POSITIONS: Honorary

- **Professor Emeritus, Worcester State University,** 8/2019 –
- **Adjunct Professor:** Computer Science & Engineering, University of South Carolina, Columbia, 2008-10

POSITIONS: Research and Corporate training

- **Office of Naval Research Faculty Fellow,** SPAWAR Atlantic Center, Joint Base-Charleston, SC, Summer of 2016 & 2018
- **Office of Naval Research SENIOR Faculty Fellow,** SPAWAR Atlantic Center, Joint Base-Charleston, SC, Summer 2017
- **Hanover Insurance Training**: Invited to carry out Analysis and training for migration to JAVA platform, Spring 2013
- **AT&T Research (**formerly, **The BELL LABs) Labs**, **(Research)** Statistics & Visualization, Spring-Summer 2009
- **Research Assistant**: Department of Mathematics, University of New Hampshire, Summers 1995-99

RESEARCH: Publications (Research contributions journals in Mathematics, Physics, Computer Science, and Engineering)

- *Localization of brain tumor from brain MRI images using deep learning*, *R. Wajgi, J. Tembhurne, H. Pendharkar, O. Deshpande*, Book Chapter, Proceedings of 1st Intl. Conf. (RAMMML-22) Vol. 1, pp 635-642, (In print), 2023
- *Identification of Biometric Facial Geometry using RGB-D Image based Fuzzy Model, A. Wagare, S. Rathakanthiwar, Hemant Pendharkar,* International Journal of Technology and Emerging Sciences, Volume 02 Issue 03, pp 52-55, 2022
- *Central Sequences in Subhomogeneous Unital C* Algebras, w/ Don Hadwin*; Bull. Aust. Math. Soc. V 103, pp.318–325, 2021
- *An experimental investigation into the practical performance of lattice reduction algorithm on ideal lattices,* w/ Batson, et., al, SIAM Conference on Computational Science and Engineering, presentation, Atlanta; Preprint, supported by **ONR**, 2017
- *Suitability of Lattices for Project Based Introduction to Cryptography, w/ Batson,* et., al; Preprint, supported by **ONR**, 2017
- *Techniques for Minimizing Area and Power in Test Pattern Generations,* w/ Kakade, et. al, doi:10.1109. pp 0429-0433, 2017
- *On the Implementation of a Discrete Mathematics Course,* Inroads, w/ SIGCSE committee - 2007
- *Frequent pattern mining with preferences–Utility functions approach*, w/ E. Braynova, LNAI 3488, pp 364-372, 2005
- *Preference based frequent pattern mining-From base preferences to combined preferences,* w/ E Braynova, IPSI-MIT 2005
- *Wormhole generated physical universe*, with L. Choudhury, Hadronic J. Vol. 24, Issue 4, pp 275-290, 2001
- *Derivations of Certain Operator Algebras*, w/ J. Li, Int. J. of Math., Vol. 24 Issue 5, pp 345-351, 2000

RESEARCH/Externally Funded Projects: (NSF, ONR, NASA, Department of Education, DOD–ARO, College Board)

- **NSF -** REU site at USF- Cryptography and Coding Theory at USF – 05/2023 – 2026; $427, 000 (Senior faculty)
- **USF** – Inter-campus collaboration grant – Cryptography and Coding Theory, 2023-24, $10,000 (PI)
- NASA/TEAMS grant for the Governor's School for Science and Mathematics, Robotics Team: $6000.00, 2008-09 (PI)
- **NSF**: "*Integrated Research & K-16 Ed. on Sustainability through an Earth Science Framework*", 2006-08, $134K (Co-PI)
- **WSU-mini-grant:** to develop **Parallel processing cluster/course development**, 2004-05, $3000 (PI)
- **DOD-Army Research Office:** "*Instrumentation grant, Elizabeth City State University*"; 09/2001 to 08/2002, $198,000 (PI)
- **NASA Glenn Research Center:** "*Air Traffic Analysis"*, an **unsolicited grant**, 08/2001 to 08/02, $35000 (PI)
- **NASA Glenn Research Center:** "*Air Traffic Analysis (Extension)*, an **unsolicited grant**, 08/2001 to 08/02, $5,000 (PI)
- **Office of Naval Research**: "*Duck 94*", compilation and analysis of Oceanographic data, joint project with Army Corps of Engineers, Duck, NC. http://www.onr.navy.mil/sci_tech/ocean/reports/docs/cd/00/cdbirk.pdf - 500K 09/99–12/00 Sr Faculty
- **NASA Glenn Research** Center: "*Controlling Chaos in Josephson Junction*", 1999 – 2001 (Co PI)
- **Office of Naval Research**: "*Nurturing ECSU Research Talent*", 09/1999 – 12/2000 (Faculty Participant)
- **Department of Education-** D. Eisenhower Grant: "***D**eveloping **R**ich and **E**ngaging **A**ctivities in **M**athematics **(DREAM)***", at the University of New Hampshire 1998-99 (Graduate Student participant – involvement from writing to execution)

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RESEARCH: Presentations (Conferences/Invited Lectures (Mathematics, Physics, and Computer Science)

- Keynote Speaker*: "Mathematical Foundations in Engineering and Technology*" - Faculty development Program YCCE and International conference, Nagpur, India, 4/28/2022
- *"Suitability of Lattices for Project Based Introduction to Cryptography", with Batson,* et., al, Joint Math Meeting 1/2017
- *"An experimental investigation into the practical performance of lattice reduction algorithm on ideal lattices,"* with Batson, et., al, SIAM Conference on Computational Science and Engineering, presentation, Atlanta - 2017
- Invited Lectures**:** *Borel Structure for Econometrics,* Department of Economics, University of Bombay, 8/2013
- Invited Lecture on *Cyber Security***,** Constituent Colleges, University of Bombay, India 8/2013
- Invited Lecture on *Cyber Security and Data Mining***,** Constituent Colleges-University of Nagpur, India, 8/2013
- Invited organizer and presenter: *Faculty Leadership Institute on C and Data Structures* at Jawaharlal Nehru Technological University, INDIA, for the **Indo-US Collaboration for Engineering Education (IUCEE)**, 2011
- "*Frequent Pattern mining with Preferences – Utility Functions Approach*", with E Braynova, International Conference on Intelligent Systems, Saratoga Springs, NY, May 2005
- "*Frequent Pattern Mining with Preferences-From Base Preferences to Combined Preferences*", with E Braynova, IPSI-2005 MIT-Cambridge an international inter-disciplinary Conference, July 2005
- "*Mathematical techniques in Computer Science*", invited speaker at the Math-Computer Science club, WSU April, 2003
- "*Wormhole generated physical universe*", at the American Physical Society meeting, Charlottesville, NC, 2001
- "*Program design using mathematical tools*", invited lecture Center for Science and Scientific Visualization, ECSU, June 2001
- "*Central sequences and C*-algebras*", invited lecture at ECSU-CSSV, October 2001
- "*Derivations of certain operator algebras*", at the Great Plains Operator Theory Symposium (GPOTS) May 1998
- "*Derivations of Triangular operator algebras*", at the Northeastern section of the MAA, Keene, NH, June 1998
- *"Integrating Calculus, Geometry and Linear Algebra*", Invited lecture: PME chapter of the UNH, Spring 1997
- *"Geometry of Normalization"*, Department of Mathematics, UNH (PhD minor in Algebraic Geometry) Spring 1997

RESEARCH: Selected Undergraduate student research mentoring

- *"Cloud Computing",* L Paropkari, CCSCNE-2013, Student research publication, JCSC supplement pp 30, April 2013
- *"Multiple search techniques",* M Dellomo, CCSC-CP student research publication, JCSC supplement, **Third place: Best student research award:** April 2011
- *"Securing the VOIP",* R Cataldo, CCSCNE, 2011, Student research publication, JCSC supplement - pp. 1, April 2011
- *"Multi-Platform Video Game Engine",* B Shea, CCSCE regional conference at Mary Washington University; **First Place**: **Best Student Research Award**; JCSC Vol 22 Issue 3 pp 55 2007
- "*Primes, Algorithms and Applications*", S. McCarthy, 50th MAA-NE Sectional meeting, at UNH, 2005
- "*Analysis of Difference of Primes*", S. McCarthy, poster presentation, CCSCNE conference, JCSC Vol 19 Issue 5 pp 284 2004

SERVICE: Editorial and Advisory Assignments/Conference Board/committee memberships (Selected)

- Chair, Board of Trustees, Spirit of Knowledge Charter School, Worcester, MA, to June 2011
- Member of the Scientific Committee: International Conference of Mathematical Sciences, Turkey, 2009
- Board member and Secretary of the Consortium for Computing in Colleges, South Eastern section, 2007-09
- Board member of the Consortium for Computing in Colleges, North Eastern section, 2006 to 2014
- Editorial board member and reviewer for Scientific Journals International, 2005
- Associate Editor and reviewer, International Journal of Applied Math and Statistics, 2005 to 2007
- Invited member of the Engineering Advisory Team of the **Massachusetts Biomedical Initiative** 2003 - 06
- Best Paper award Committee, CCSCNE conference 2005, 2006, 2007
- Contributing Editor and Paper's Chair and reviewer, Journal of Computing Sciences in Colleges, 2003
- Programming contest judge, Student Poster session judge, CCSCNE 2002

SERVICE: Shared Governance (in Collective Bargaining (or otherwise) Framework

- Member, USF- Mathematics and Statistics – Advisory Committee, 2021-2023, 2203-3-24
- Member, USF-CMS Migration committee, Mathematics and Statistics, 2021-22
- Member, USF-CAS Leadership team, St Petersburg campus. 2019-
- Member, USF-Mathematics and Statistics, Undergraduate committee – 2021-2023
- Member, Student Affairs Committee, WSU, 2006-07, 2015-16, 2016-17
- Elected officer (Secretary) of the MSCA Worcester Chapter**,** 2010-16
- Elected member, University Wide Tenure Committee, Worcester State University, 2009-2011
- Chair**,** Computer Science, WSU Peer Evaluation 2005-07, Member/Chair, Mathematics Peer Evaluation 2005-07, 2013-14
- Member, Worcester State University Vice President for Academic Affairs Search Committee, 2006-07
- Chair**, core curriculum** reform sub-committee on Quantitative Reasoning requirement, 2005-06.
- Mentor to a new tenure-track faculty in Worcester State College Computer Science department, 2003-04
- Liaison, Department of CS and Information Technology: Responsible for representing the department to IT-2002-2010
- Member, inter-disciplinary concentration in Bio-Informatics committee**,** 2002-05
- Member, WSU President's Strategic Planning Committee on Retention**,** 2003-05
- Member, College-wide Scholarship Committee: 2005, 2006 and 2011
- Member, Elizabeth City State University, University-wide SACS Committee on Standards, 1999 - 01
- Member, Elizabeth City State University – Information Technology Council, 1999-01
- Member, Elizabeth City State University Department of Math and CS Curriculum Committee, 1999-00

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SERVICE: Significant contributions to the department and college infrastructure

- USF – First Smart Lab for gen Ed Math courses, St Petersburg campus – I was the faculty participant in the negotiation, during my very first semester at USF
- Carried out the Computer Science Program Review, 2006-07
- First Networked UNIX lab at Worcester State University and established the **CS-Demilitarized Zone** 2002-03
- Parallel computing cluster that is available for research, teaching at Worcester State University, 2004-05
- UNIX research lab at ECSU using my grant from the DOD, Army Research Office Infrastructure grant, 2000-01

TEACHING: Graduate

	Mathematics	Computer Science	Statistics	Management	Core Curriculum
Graduate	Algebra I Algebra II Analysis I Analysis II Discrete Math for Teachers			Information Technology – a Core course in MS in Management program	

TEACHING: Undergraduate, non-credit and high school

Undergraduate	Survey of Math College Algebra Pre-Calculus Finite Mathematics Honors Calculus II Calculus I Calculus II Calculus III Number Theory Differential Equations Discrete Math I Discrete Math II Linear Algebra Compl. Linear Algebra Abstract Algebra	Introduction to Comp Sc. CS I - C++ & JAVA CS II - C++ & JAVA Programming Concepts Data Structures Automata Theory Unix Syst. Programming Operating Systems Sys/Net Administration Computer Architecture Data-Comm & Network Prog. In C under Unix Scientific Programming Assembly Programming Networking & Security	Probability and Statistics Environmental Statistics Intro to Statistics	Micro-Computer Application in Business	Computers in Society (Urban Studies Dept.) Freshman Orientation Seminar
Non Credit Courses		Survey of Op. Systems System Administration Network Administration Shell Programming Large Storage Admin (Developed with EMC)			
High School	Abstract Algebra				
Middle School	Problem Solving skills for mathematics competitions				

TEACHING: Invited seminars, lectures and semester long courses overseas

Teach Overseas Semester Courses/ Workshops/ Seminars	**Borel Structures** for Graduate Students Bombay University Economics Department **Cyber-Security** Nagpur University constituent colleges-India Bombay University constituent colleges-India	Data Communication & Networking (Tel Aviv, Israel) Faculty Leadership Institute C-Data Structures (2011) INDIA 10 Lecture Webinar Course on C and Data Structures for IUCEE (2012) INDIA		Systems Analysis and Design (Tel Aviv, Israel) HR Development – (Tel Aviv, Israel)	

TEACHING: New Courses Developed

- UNIX Systems Programming – CS282, a Required course in CS curriculum
- One-credit equivalent of Linear Algebra content in the existing Discrete Math II, a required course in CS
- System and Network Administration, a new elective course
- Systems Programming - CS380, revamped the course with relevant content
- Computers in Society – UR191, new Freshman Orientation course for the department of Urban Studies
- Perl Programming, new elective course in Computer Science

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Internship supervision: Networked with the local industry and generated 22 **Industry Internships.** 01/2002– Internship coordinator for Computer Science department. I supervised these internships.

Business and Industry Experience: Pendharkar Engineering Pvt. Ltd & Pendharkar Consultancy (Metal Finishing) – 1984-94

System and Network Administration and IT Management

My experience is in management and extensive hands-on, and additionally, curricular experience having developed and offered a five-course certificate in system and network administration.

- I was the UNIX System Administrator for the Department of Mathematics and Statistics, University of New Hampshire. 1996-98. My responsibilities included but not limited to, managing the UNIX server and several UNIX and Windows clients, managing user accounts, software and license issues, the web server, backups, writing automation scripts as needed, enabling file server for Windows clients, and routine system install/upgrade.
- At Worcester State University, I created the Demilitarized zone for Computer Science and managed the CS intranet for five years. I was responsible for preparing budgets and supervising the lab-technician

HONORS AND AWARDS (Fellowship, Academic Merit Scholarship, Athletic Scholarship, Travel Grants)

- **Post-Tenure Evaluations:** Worcester State University: 2012-13 and 2018-19 -Rated exemplary in all areas w/ full 6% raise
- **Alden Teaching Fellowship,** member of the first teaching fellow's cohort, WSU 2006-07
- **Faculty Excellence in Scholarship and Research Award,** Worcester State University, 2006
- **Teacher of the year Award Nominee and finalist**, Worcester State University, Academic year 2005-06
- **Merit Bonus Award:** Worcester State University, Academic year 2002-03
- **Appreciation Award:** Worcester State University: Advisor to the ACM Student Chapter, 2003-04
- **Educators Grant:** *Special Interest Group on Computer Science Education*, Charlotte, NC, 2002
- **Educators Grant:** *Special Interest Group on Computer Science Education*, Austin TX, 2001
- **Travel Grant from ACM:** *Programming Languages* (PLDI2001) Conference in Snowbird, Utah, 06/2001
- **Travel Grant from ACM:** *Programming Languages* (PLDI2000) Conference in Vancouver, Canada, 06/2000
- **Mathematical Sciences Research Institute Scholarship:** Summer 2000 (could not attend): *Operator Algebras program*
- **Dissertation Fellowship**: (One among fifteen recipients) University of New Hampshire, 1998-99
- **Travel Grant (NSF)** to attend the *International Conference on Operator Algebras* in Shanghai, China, July, 1997
- **Travel Grant (National Board for Higher Mathematics, INDIA):** *Intl. Conf. on Operator Algebras*, India, January, 1997
- **Merit Scholarship**: Department of Mathematics, University of Bombay, 1992-93 and 1993-94
- **Athletic Scholarship** (tuition): University of Bombay, 1984-85; winner of the **Gold Medal**, Bombay University **Boxing Championship**, (selected to and) Represented the University at the **National Boxing Championship.**

DOD Security Clearance: *Secret*