

HARSH WARDHAN AGGARWAL

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West Lafayette, IN 47907

EDUCATION

- 1/14-5/18(Exp) **Ph.D., Industrial Engineering**
Purdue University
Advisor: Steven Landry, Ph.D.,
Specialization: Judgment Analysis and Decision Making
- 7/12-8/12 **Summer Business Scholar Program**
University of Chicago Booth School of Business
- 1/11-12/12 **M.S. Industrial Engineering**
Purdue University
GPA: 3.93/4.0
Specialization: Human Factors
- 8/06-12/10 **B.S. Industrial Engineering**
Purdue University
Major GPA: 3.95/4.0, Overall GPA: 3.45/4.0
Two years at BITS, Pilani-Dubai Campus (BPDC), Dubai, UAE

AWARDS AND HONORS

- 1/16-4/16: **Magoon Award**, Graduate Teaching Award, Purdue University, West Lafayette, IN, USA
- 1/16-4/16: **Teaching Academy Graduate Teaching Award**, College of Engineering, Purdue University, West Lafayette, IN, USA
- 1/16-4/16: **Advanced Graduate Teaching Certificate**, Purdue University, West Lafayette, IN, USA
- 9/15-9/15: **First Prize**, 8th Ecological Sciences and Engineer Poster Symposium, Purdue University, West Lafayette, IN, USA
- 4/15-4/15: **Service Scholarship**, Industrial Engineering, Purdue University, West Lafayette, IN, USA
- 4/15-4/15: **First Prize**, Sigma Xi Research Showcase, Environmental Science Division, International Competition.
- 3/15-3/15: **Second Prize**, Industrial Engineering Graduate Student Poster Symposium, Purdue University, West Lafayette, IN, USA
- 4/14-4/14: **Certificate of Excellence in Research Award**, Office of Interdisciplinary Graduate Program Spring Reception, Purdue University, West Lafayette, IN, USA
- 4/14-4/14: **Second Prize**, 8th Annual Elevator Pitch Competition, Purdue University, West Lafayette, IN, USA
- 7/12-8/12: **Commencement Speaker**, Summer Business Scholar Program (SBSP), University of Chicago Booth School of Business, Chicago, IL, USA
- 7/12-8/12: **Social Planner Award**, Summer Business Scholar Program (SBSP), University of Chicago Booth School of Business, Chicago, IL, USA
- 1/09-8/10: **Consecutive Semester Honors**, Purdue University, West Lafayette, IN, USA
- 5/10-8/10: **Summer Undergraduate Research Fellow (SURF)**, Purdue University, West Lafayette,

IN, USA

RESEARCH EXPERIENCE

- 9/16-Present: **Graduate Research Assistant**, Dr. Douglas' Lab, Purdue University, IN
Skills Developed: Literature review, data analysis, survey cleaning
 Cleaned survey data and developed an automated system to combine and clean large scale pre-and post-course data from Massive Open Online Courses (MOOCs). Researched on pre-survey data to identify learner patterns using pre-course survey data for nanoelectronics courses offered through Purdue, which helped to refine survey questions and learner identification for future courses.
- 9/15-9/16: **Graduate Research Assistant**, Landry Lab, Purdue University, IN
Skills Developed: Literature review, theory development
 Working to refine the information processing theory regarding dual tasking behavior in humans. The research involves defining a task, coming up with a goal alignment theory for different tasks and eventually applying it in fields like driving while texting and doing multiple tasks at jobs (for example for a pilot or an air traffic controller).
- 7/14-8/15: **Interdisciplinary Research**, Landry Lab and Motor Speech Lab, Purdue University, IN
Skills Developed: Running human in the loop experiments, data collection, survey development, participant recruitment, literature review, experimenter training, special population training: older adults and people with Parkinson disease
 Worked on a novel approach to test the effect of recall ability and situation awareness on the dual task performance for older adults and people with progressive neurological diseases (specifically Parkinson's disease). The research is jointly undertaken in multiple departments- Industrial Engineering, Speech, Language and Health Sciences, and Health and Kinesiology.
- 8/11-12/11: **Graduate Research Assistant**, Landry Lab, Purdue University, IN, USA
Skills Developed: data collection, statistical data analysis
Ideal Utility Project: Developed statistical tracking and prediction models using statistical regression for efficient energy modeling and prediction for different cities for fast food chain stores in Dallas and LA. Project resulted in the development of models, which predicted million-dollar savings for the company.
- 1/11-8/11: **Graduate Research Assistant**, Landry Lab, Purdue University, IN, USA
Skills Developed: Literature review, Air Traffic Environment knowledge, Air traffic scenario development, Simulation
Dynamic Airspace Configuration (DAC): Worked on a novel idea for NASA funded project for Dynamic Airspace Configuration (DAC) under NextGen. Checked the

feasibility analysis of stream class management within the TRACON and its extension in the Center. Conducted literature review for DAC and proposed dynamic airspace at the Terminal level.

Regenstrief Center: Modeled false alarm rates for Infuser Pumps at hospitals in IN and IL. Conducted on-site interviews and research to better understand pain points for different agents associated in the healthcare delivery system.

5/10-8/10: **Summer Undergraduate Research Fellowship Student**, SURF, Purdue University, IN, USA

Skills Developed: Running human in the loop experiments, data collection, survey development, participant recruitment, literature review, Air Traffic Environment knowledge, Air traffic scenario development, Simulation, Stakeholder engagement-aviation sector, UX experience.

Off-Nominal Collision Pair Mitigation: Conducted experiments for a NASA funded project on VATSIM controllers to understand the mitigation tasks performed on en-route flights. Designed flight scenarios for VATSIM controllers to study controller behavior during off-nominal collision (ONC) and loss of separation (LOS) events.

8/09-5/10: **Undergraduate Research Student**, Landry Lab, Purdue University, IN, USA

Skills Developed: Literature review, modeling

McRuer Crossover Model: Worked on McRuer Crossover Model to understand and analyze the pilot dynamics. The project was a step towards understanding human errors in the flight deck during the course of flight. Modeled pilot actions while tracking the performance and the time lag involved.

8/09-12/09: **Undergraduate Research Student**, Operations Research, Purdue University, IN, USA

Undetermined Systems: Created algorithms in MATLAB and GAMS to solve undetermined system of linear equations with sparse solutions. The project involved development and debugging of the algorithms to check the numerical implementation of the concept.

WORK EXPERIENCE

5/17- Present: **Instructor**, Engineering Economics, Purdue University, IN, USA
Received a rating of 4.9/5 from students.
Designed the engineering economics (IE 343) course for an undergraduate class of 35 students.
Instituted flipped lectures, work-pair-share, in-class discussion and hands-on assessments in the class design.
Taught concepts of time value of money, project worth, cash flow estimations and tax accounting.

1/16- 12/16: **Teaching Assistant**, IE 330 (Probability for Engineers) and 383 (Production Systems), Purdue University, IN, USA

Received a rating of 5/5 from students.
Teaching review sessions and studio sessions to aid student learning in statistical concepts.

- Mentoring students for industry by teaching concepts like line yield, forecasting, procurement and facility planning.
- 8/15- 12/15: **Instructor**, Work Analysis and Design I, Purdue University, IN, USA
Received a rating of 4.9/5 from the students.
Redesigned human factors and ergonomics lab and managed 3 teaching assistants.
Developed class projects for student teams to work on realistic economic problems.
Instituted flipped lectures, work-pair-share, in-class discussion and hands-on assessments in the class design.
- 6/15- 8/15, 1/16-8/16: **Instructor**, Engineering Economics, Purdue University, IN, USA
Received a rating of 4.9/5 from the students.
Developed class projects for student teams to work on realistic economic problems.
Instituted flipped lectures, work-pair-share, in-class discussion and hands-on assessments in the class design.
- 1/15- 5/15: **Instructor**, Engineering Economics, Purdue University, IN, USA
Received a rating of 4.7/5 from students.
Designed the engineering economics (IE 343) course for an undergraduate class of 170 students.
Instituted flipped lectures, work-pair-share, in-class discussion and hands-on assessments in the class design.
Managed a teaching team consisting of 4 Teaching Assistants for the course.
- 2/14- 12/14: **Graduate Technical Assistant**, Technical Assistance Program, Purdue University, IN, USA
Worked as a third-party consultant and have undertaken industrial engineering projects for companies in Indiana including process flow optimization, facility planning and employee productivity.
Received excellent feedback from the clients and helped in creating quantifiable benefits for multiple companies. The company names and work cannot be released due to NDA.
- 8/14- 12/14: **Teaching Assistant**, Engineering Economics, Purdue University, IN, USA
Received a rating of 3.9/5 from the students.
Graded homework, assignments and quizzes for a 150-student undergraduate class.
Helped students with engineering economy problems, decision-making and overall queries during office hours.
- 1/14- 5/14: **Teaching Assistant**, Industrial Engineering Design, Purdue University, IN, USA
Received a rating of 4.5/5 from the students
Work as a cluster leader to manage and assist undergraduate student teams in engineering consulting projects for various Fortune 500 companies.
- 8/12-12/12: **Teaching Assistant**, Work Analysis and Design, Purdue University, IN, USA
Received a rating of 4/5.
Taught design software including CATIA and QUE to a class of 50 undergraduate students. Also corrected lab reports for workload design.
- 5/12-8/12: **Human Factor Intern**, Illinois Tool Works (ITW), Glenview, IL, USA
Developed dashboard user interface for a welding technology for Miller Electric.
Designed a learning software interface for a copyrighted application for Miller welding. Refined the interaction platform for a database application for Instron and RainX.

- 1/12-5/12: **Documentation and Public Information Intern**, UNESCO, Delhi, India
Information Liaison for UNESCO, India. Cluster office for Maldives, Sri Lanka, Bangladesh, Nepal & Bhutan. Strategized the communication tactics for UNESCO, New Delhi, India. Managed the UNESCO presentation at 20th World Book Fair, 2012. Also, developed UNESCO newsletter for worldwide circulation.
- 1/10-5/10: **Senior Design Student**, VA Outpatient Clinic, Indianapolis, IN, USA
Worked in a team of four to improve the efficiency of a call center for VA clinic. Proposed ergonomic changes in the work place and suggested an integrated and automated call center to optimize the call timing for the customers (patients). Devised a detailed plan for a feedback method for customers.
- 5/09-6/09: **Summer Internship Student**, The Robbins Company, Solon, OH, USA
Worked towards inventory optimization and material tracking at the shop floor. Developed an implementation plan for the bar-coding system for the inventory. Conducted a detailed market research to find the best match for the bar-coding equipment. Provided a cost-benefit analysis for the proposed inventory changes and submitted a thorough report in the end.
- 5/07-8/07 and
5/08-8/08: **Project In-Charge**, Precision Engineers & Fabricators, New Delhi, India
Installed a conveyor system for the pipeline facility to aid in material handling.

PUBLICATIONS

- Aggarwal, Harsh W. & Landry, S.J. (2015). **Regression modeling to track and predict the Energy Usage in the Restaurant Industry**, ISERC, USA
- Aggarwal, Harsh W., Eldardiry, Omar, London, Jeremi, Su, Kerina W. (2012). **Modeling Faculty Growth in a College of Engineering**, Research Seminar in Human Factors, Purdue University
- Aggarwal, Harsh W., Kang, Ziho, & Landry, S.J. (2010). **Mitigation by air traffic controllers**, Summer Undergraduate Research Fellowship Symposium (SURF), Purdue University

ACCEPTED & INVITED PRESENTATIONS

- Aggarwal, Harsh W., Fall (2016). **Graduate Student Uncovered**, Alpha Pi Mu, Honor Society, Purdue University, USA (September, 2016)
- Aggarwal, Harsh W., Spring (2016). **Graduate Student Uncovered**, Alpha Pi Mu, Honor Society, Purdue University, USA (February, 2016)
- Aggarwal, Harsh W. (2015). **Saving a Billion for Aviation Industry leads to Energy Development from City trash and increase in the Standard of Living**, AERUS, Purdue University, USA
- Aggarwal, Harsh W. & Landry, S.J. (2015). **Regression modeling to track and predict the Energy Usage in the Restaurant Industry**, ISERC, USA
- Aggarwal, Harsh W. (2012). **Business Development Internship Experience at ITW**, Human Factors and Ergonomics Society-Purdue Chapter, Purdue University, USA
- Aggarwal, Harsh W., Kang, Ziho, & Landry, S.J. (2010). **Mitigation by Air Traffic Controllers**, Summer Undergraduate Research Fellowship Symposium (SURF), Purdue University, USA

POSTER PRESENTATIONS

Aggarwal, Harsh W. & Landry, S.J. (2015). **Saving a Billion for Aviation Industry leads to Energy Development from City trash and increase in the Standard of Living**, Industrial Engineering Grissom Hall Renovation Event, Purdue University, USA

Aggarwal, Harsh W. & Landry, S.J. (2015). **Saving a Billion for Aviation Industry leads to Energy Development from City trash and increase in the Standard of Living**, Industrial Engineering Graduate Student Organization Symposium, Purdue University, USA

Aggarwal, Harsh W. & Landry, S.J. (2014). **Regression modeling to track and predict the Energy Usage in the Restaurant Industry**, Industrial Engineering Graduate Student Organization Symposium, Purdue University, USA

Aggarwal, Harsh W. & Landry, S.J. (2014). **Regression modeling to track and predict the Energy Usage in the Restaurant Industry**, Sigma Xi Poster Competition, Purdue University, USA

Aggarwal, Harsh W. & Landry, S.J. (2014). **Regression modeling to track and predict the Energy Usage in the Restaurant Industry**, Big Ten + Exposition, Purdue University, USA

MENTORSHIP EXPERIENCE

- 1/16- Present: **Undergraduate Student Mentoring**, Purdue University, IN, USA
Advised undergraduate students independently in their research.
Developed a research plan for the undergraduate student that resulted in a pilot experiment and a technical report.
- 9/15- 11/15: **Graduate Student Scientific Presentation Mentoring**, Purdue University, IN, USA
Taught Ph.D. students about scientific presentations and poster presentations.
- 8/15- 12/15: **Undergraduate Student Mentoring**, Purdue University, IN, USA
Advised two undergraduate students in their research in Human Factors.
Trained the students in human in the loop experiments and writing experiment protocol.
Mentored students in developing a research problem, creating a hypothesis, and designing an experiment.
- 8/15- 12/15, Present: **Expert Mentor, EPICS team**, Purdue University, IN, USA
Mentored a team of around 15 undergraduate students in their design of biogas digester project for Uganda.

PURDUE SERVICE

- 5/16- 5/17: **Co-President**, Human Factors and Ergonomics Society, Purdue Chapter, West Lafayette, IN, USA
Increased national membership through remodeling the recruitment strategy.
Developed new brainstorming sessions like design hackathons for human factors students at Purdue.
- 1/17- 5/17: **Mentor**, IE Senior Design Capstone Project (IE 431) teams, Purdue University, West Lafayette, IN, USA
Mentored 3 teams comprising of 12 undergraduate seniors for consulting projects.
Projects involved setting up of an automated user interface system for a local car wash company and a facility planning for a manufacturing firm in Indiana.

- 8/16, 8/17: **Presenter**, “How to teach” at teaching assistant orientation, Purdue Chapter, West Lafayette, IN, USA
Presented with Dr. Heidi Deifus-Dux to a audience of 500 graduate teaching assistants.
Taught how to teach, be a good teaching assistant, be a good presenter in class and how to manage a classroom.
- 8/14-8/17: **Organizer and Speaker**, Incoming graduate student orientation, Purdue University, West Lafayette, IN, USA
Helped the department in organizing incoming graduate student orientation. Conducted the orientation sessions and guided the students on various Purdue systems like blackboard, myPurdue, myMail and Purdue CCO.
- 5/14-5/15: **Vice President**, Human Factors and Ergonomics Society, Purdue Chapter, West Lafayette, IN, USA
Actively involved in presenting and organizing various research specific events for HFES Purdue Chapter.
- 5/14-5/15: **Social Chair**, Industrial Engineering- Graduate Student Organization (GSO), Purdue University, West Lafayette, IN, USA
Graduate Student Orientation: Presenter and organizer of the GSO event for the graduate student orientation for Fall 2014. Presentation included important information regarding classes, blackboard, course registration and general information about the IE school. Also, introduced different IE disciplines to the students.
Prospective Graduate Student Recruitment Week: Organized the different sessions for the prospective graduate students for Fall 2014.
Organized and managed (along with the GSO members) the first ever IE Career Night which had 5 companies and more than 170 students in attendance. The event included company presentations, student question answer sessions and one-on-one time with the recruiters.
Regularly organize social events for IE graduate community at Purdue.
Presented a research talk for the IE undergraduate students to motivate them towards graduate school and answered questions regarding admission process and applications.
Successfully wrote (along with the GSO committee members) and won multiple grants from the Purdue Graduate Student Government (PGSG) and College of Engineering (COE) for the IE GSO fund.
- 5/14-8/14: **Session Chair and Judge**, SURF, Purdue University, West Lafayette, IN, USA
Volunteered as a session chair and judge for multiple oral presentations and posters for SURF program
- 7/14-7/14: **Volunteer**, Seminar for Top Engineering Prospects (STEP), Purdue University, West Lafayette, IN, USA
Volunteered as presenter for STEP participants to motivate them and introduce various IE concepts in an applied setting under the guidance of Dr. Patrick Brunese.
- 5/14-12/14: **Co-Chair**, Career Fair Committee, PGSG, Purdue University, West Lafayette, IN, USA
Organized one of the largest graduate career fair at Purdue. Led a team of more than 20 students to make it a successful event.
- 8/12-12/12: **Treasurer**, Industrial Engineering Graduate Student Organization (GSO), Purdue

- University, West Lafayette, IN, USA
- 8/12-12/12: **Board Member and IE Rep**, Graduate Student Advisory Committee, Purdue University, West Lafayette, IN, USA
Represented IE in the advisory committee and gave input in various regulations for the graduate student community.
- 8/12-12/12: **Board Member and IE Rep**, Graduate Student Events Committee, Purdue University, West Lafayette, IN, USA
Represented IE in the events committee and organized the Engineering Olympics for 2012
- 8/12-12/12: **Organizer and IE Rep**, Engineering Olympics, 2012, Purdue University, West Lafayette, IN, USA
Represented IE at the engineering Olympics event. Acted as the in-charge of internal publicity and event organization.
Also served as the event photographer.
- 8/11-12/12: **Computer Administrator**, Landry Lab, Purdue University, West Lafayette, IN, USA
- 6/11-12/12: **Student Mentor**, University Residence (UR) Global, Purdue University, West Lafayette, IN, USA
Mentored an International student from China for 2 years. Provided guidance regarding major selection, US culture and undergraduate courses.
- 9/10-Present: **Student Ambassador**, International Students and Scholars (ISS), Purdue University, West Lafayette, IN, USA
Actively involved as a student ambassador to help international students from all over the world to acclimate to the US and Purdue culture.
Volunteer for multiple students as an editor for resumes, CVs and Application documents.
- 1/12-Present: **Member**, Alpha Pi Mu, Purdue Chapter, Industrial Engineer Honor Society

EXTERNAL SERVICE

- 8/16-8/16: **Reviewer**, HFES Session and CEDM Session, HFES Annual Conference, Washington
- 8/15-8/15: **Reviewer**, HFES Session and CEDM Session, HFES Annual Conference, California
- 8/14-8/14: **Reviewer**, HFES Session and CEDM Session, HFES Annual Conference, Chicago
- 8/14-8/14: **Co-Chair**, CEDM Session, HFES Annual Conference, Chicago, 2014
- 8/14-8/14: **Co-Chair**, HFES Session, HFES Annual Conference, Chicago, 2014
- 8/14-8/14: **Student Volunteer**, HFES Session, HFES Annual Conference, Chicago, 2014
- 3/13-3/13: **Volunteer Speaker**, Teach For India (TFI), New Delhi, India
- 8/12-9/12: **Volunteer Fundraiser**, Teach For India (TFI), New Delhi, India
- 5/12-8/12: **Employee Volunteer**, United Way Campaign, Illinois Tool Works (ITW), IL, USA
- 5/11-8/11: **Student Volunteer**, FAA ACE Academy, Purdue University, Indianapolis, IN, USA
Represented Purdue at the FAA ACE Academy to motivate high-school students to join engineering and aviation industry

MEMBERSHIPS AND AFFILIATIONS

Sigma Xi Associate Member

Human Factors and Ergonomics Society (HFES)

Institute of Industrial & System Engineers (IISE)

Alpha Pi Mu, Industrial Engineer Honor Society

Institute of Electrical and Electronics Engineers (IEEE)

SKILLS

Human Factors: Product Design, Human Experiments, Sensitivity Analysis, MS Visio, Balsamiq

Software Packages: MATLAB, MS Office, VATSIM, MS Publisher, Adobe InDesign, AutoMOD, Autodesk Inventor, Google SketchUp, CATIA, Auto-CAD

Statistical Packages: Minitab, SAS, R

Basic Programming: SQL, GAMS, MS ACCESS