



Radhika Patil

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EDUCATION

Stanford University

PhD Candidate, Mechanical Engineering

California, USA

2016-Present

Indian Institute of Technology (IIT) Gandhinagar

Bachelor of Technology in Mechanical Engineering, Minor in Computer Science and Engineering

Gujarat, India

2012 – 2016

- **Awards & Honors:** President's Gold Medal for highest cumulative GPA in entire graduating batch for 2016; Academic Excellence Scholarship for highest cumulative GPA in entire batch for 2013, 2014, 2015; Dean's list for all semesters.
- All India Rank 3079 in 560,000 students appearing for IIT Joint Entrance Exam 2012

WORK EXPERIENCE

Gu Lab

Researcher

Stanford University

June 2017 – Present

- Conduct hands-on experimental research for mechanical characterization of nanoparticles and thin films.
- Plan experiments on nanoparticle synthesis, in-situ mechanical testing, process and analyze experimental data, model observations for underlying deformation mechanisms.

Selected Projects and Publications:

- Kiani, M.T., Patil, R.P. and Gu, X.W., 2019. *Dislocation surface nucleation in surfactant-passivated metallic nanocubes*. *MRS Communications*, 9(3), pp.1029-1033.
- Patil, R.P., Doan, D., Aitken, Z.H., Chen, S., Kiani, M.T., Barr, C.M., Hattar, K., Zhang, Y.W. and Gu, X.W., 2020. *Hardening in Au-Ag nanoboxes from stacking fault-dislocation interactions*. *Nature Communications*, 11(1), pp.1-9.
- Yin, Y., Patil, R.P. Park, J.M., Gu, X.W., Cai, W. *Modelling viscoelastic properties of optically clear adhesive polymeric thin films*. (In Process, collaboration with Samsung Display)
- Patil, R.P., Gu, X.W., *Strain rate dependent deformation of amorphous cobalt sulfide nanoboxes*. (In Process)

University of Washington

Summer Intern, Boechler Research Group

Seattle, Washington

May 2015 – July 2015

- Conduct experiments to develop acoustic metamaterials for controlled wave propagation.
- Develop graphene transfer technique to introduce a thin graphene layer under Langmuir-Blodgett assembled PS microspheres

Indian Institute of Technology (IIT) Bombay

Summer Intern, S.D. Sharma Aerospace Engineering

Mumbai, India

May 2014 – July 2014

- Computational fluid dynamic simulations using ANSYS to model cardiovascular blood flow at artery junctions pre and post Fontan open heart surgery procedure.

PROJECTS

Product Development, Management and Entrepreneurship

Stanford University

- *BLOOMA – Last mile consumer package delivery system*

Sept 2016 - June 2017

Collaborations: SAP SE; University of Applied Sciences Mannheim, Germany

- Concept video: <https://www.youtube.com/watch?v=18f7GaQVFcU>
- Full text: <https://searchworks.stanford.edu/view/kq227vw2007>

A crowd-sourced package receiving system for individuals and communities making every attempt successful to optimize delivery system for couriers and e-commerce companies. Keeping in mind safety and security using a centrally controllable smart locking system, motion sensors, and live app notifications for safe access to houses for parcel delivery.

- Developed from scratch through a user centered product development approach using design principles, user research and iterative product development strategies.
- Prototyped and presented the concept at the MEDG Stanford design EXPErience Fair.

- *FitNew – Fitness made social*

Fall 2019



- Use design process and user research to develop MVP for social networking through event app
- Develop launch plan, monetization strategies, customer acquisition and lifetime costs, grabber and holder ecosystem, and 1-N expansion strategy for the product.

▪ Designing products for developing countries – healthcare

IIT Gandhinagar

Collaboration: Caltech, USA

Spring 2014

- Design process, user research, ideation, and prototyping products to improve health and efficiency of manual labor force operating at open construction sites in India

Data analysis and data mining

Stanford University

Working with data – tools and techniques

Spring 2020

- Process, visualize and analyze crunchbase startup market data using tableau, python pandas and google spreadsheets
- Implement machine learning and data mining on user movie ratings dataset to predict missing values.

Machine Learning, Natural Language Processing and Deep Learning, Reinforcement Learning

Stanford University

▪ Motion planning in unfamiliar environments

Fall 2016

- Neural networks based RL to implement Roomba-like path finding for simulated bot.

▪ Word vector representations using character n-grams

Winter 2017

- Develop word vector representations using component character n-grams as a strategy to model unfamiliar, compound and sandhi words.

▪ Markov decision process model for exploding kittens

Fall 2018

- Two player self-help RL to learning strategies for the game using neural networks and monte-carlo simulations

TECHNICAL SKILLS

- Design thinking, product management, accounting, machine learning
- Python, Matlab, client-side web programming in HTML, CSS, javascript, basic programming C, Java, SQL, R, nodejs
- Tableau, autodesk Inventor
- Scanning electron microscopy, transmission electron microscopy, in-situ and ex-situ nanoindentations, rheometry, colloidal synthesis of nanoparticles, molecular dynamic simulations

CONFERENCES

- Minerals, Metals & Materials Society (TMS) 2020, San Diego California – Oral Presentation
- Society of Engineering Sciences (SES) 2019, St. Louis Missouri – Oral Presentation
- Stanford System-X Alliance 2019, Stanford – Poster presentation
- Gordon Research Conference (GRC) 2018, Lewiston Maine – Poster presentation

ADDITIONAL

- Fluent in English, Hindi, Marathi, familiarity with Spanish and Mandarin
- Health freak loving food, gym, yoga and swimming, social dancer fond of waltz, polka, and swing; favorite pastime *keyboard, guitar, and painting*; Bollywood buff and music lover.