Radhika Patil

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EDUCATION

Stanford University — **California, USA**
PhD Candidate, Mechanical Engineering — *2016-Present*

Indian Institute of Technology (IIT) Gandhinagar — **Gujarat, India**
Bachelor of Technology in Mechanical Engineering, Minor in Computer Science and Engineering — *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 — **Stanford University**
Researcher — *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 — **Seattle, Washington**
Summer Intern, Boechler Research Group — *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 — **Mumbai, India**
Summer Intern, S.D. Sharma Aerospace Engineering — *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 developed 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), San Diego California – Oral Presentation *2020*
- Society of Engineering Sciences (SES), St. Louis Missouri – Oral Presentation *2019*
- Stanford System-X Alliance, Stanford – Poster presentation *2019*
- Gordan Research Conference (GRC), Lewiston Maine – Poster presentation *2018*

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.
- *Additional Honors and Scholarships*
  - Department of Science and Technology Gov. of India, (KVPY) Fellowship *2011*
  - Department of Science and Technology Gov. of India, INSPIRE *2012*
  - NCERT Gov. of India, NTSE Scholarship *2008*
- *Teaching Assistantship*
  - ME 241: Mechanical Behavior of Nanomaterials (MATSCI 241) **Stanford University**
    Theoretical mechanics for 0D, 1D and 2D nanomaterials, origin of stresses, deformation, elasticity, plasticity, and fracture in nanomaterials, *Fall 2018*
  - ES 101: Engineering Graphics **IIT Gandhinagar**
    Orthographic, isometric, perspective projections, 3D modelling with Autodesk Inventor *Fall 2013*