Tejas Shivanand Mane

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Education

- **University of Pennsylvania** — Philadelphia, U.S.A
  MS in Scientific Computing, GPA: 3.67/4.0 — *Aug. 2018 – Present*
- **Birla Institute of Technology and Science (BITS)** — Pilani, India
  Bachelor of Engineering in Mechanical Engineering; GPA: 8.49/10.0 — *Aug. 2013 – July. 2017*

Courses

Graduate Courses: Machine Learning, Biomedical Image Analysis, Big Data Analytics, Operating Systems (ongoing), Databases and Information systems (ongoing), Algorithms and Computation (ongoing).
Relevant Undergraduate Courses: Data Mining, Object Oriented Programming, Neural Networks and Fuzzy Logic.

Technical Skills

- **Languages**: Python, C/C++, Java, SQL
- **Tools and Technology**: Linux, Spark, Git, MATLAB, Excel, Inkscape LaTeX

Experience

- **Research Assistant, University of Pennsylvania** (Jan 2019 - Present):
  Currently working under Dr. Elena Bernardis, using deep learning models to study the progression of Alopecia Areata (Hair Loss) using semantic image segmentation.
- **Junior Research Fellow, IIT Gandhinagar** (Aug 2017 - July 2018):
  Worked as a Junior Research Fellow in the field of Computational Material Science and published articles in renowned Elsevier journals such as **Computational Material Science** and **Surface Science**.

Selected Projects

- **Sentiment Analysis using Deep Learning** — October 2018 - December 2018
  - Developed machine learning models to detect insincere questions using the Quora dataset available on Kaggle.
  - Applied models such as Random Forest, CNN and LSTM using Keras and Sklearn to achieve an f1 score of over 0.65 on the test data set
- **Semantic Image Segmentation using Deep Learning** — September 2018 - December 2018
  - Developed deep learning models such as MLP and CNN to achieve $\sim 89\%$ segmentation accuracy on the test data set based on Alopecia areata (Hair Loss).
- **Penn OS** (In Progress) — March 2019 - Present
  - Working in a team of 3, on building an operating system from scratch, in C.
  - Implemented job control and a memory management unit for the operating system.
- **Development of 2D2V/2D3V Particle-In-Cell code** — December 2016 - June 2017
  - Wrote a code in python (1000+ lines) for my **Undergraduate's thesis**, using Arrayfire's high performance libraries, to model the Vlasov-Maxwell system of partial differential equations which are used to study collisionless plasmas.
- **Particle Swarm Optimized Active Suspension System** — August 2016 - December 2016
  - Built a superior active suspension system on MATLAB, modeled as a dual mass-spring-damper system using a Fuzzy Logic controller whose inputs were optimized via the Particle Swarm Optimization (PSO) algorithm.
- **Stabilizing Bipedal walking via Q-learning** — August 2016 - December 2016
  - Modeled human bipedal walking as an inverted double pendulum model where the appropriate torques acting at the joints for stable bipedal walking were learnt using the Q-learning algorithm.