PURVA TENDULKAR

(+91)-9604854560 ◇ *purva.tendulkar@gmail.com* ◇ *LinkedIn* ◇ *Github* ◇ *Webpage*

EDUCATION

College of Engineering, Pune, *Maharashtra, India* July '18
B.Tech in Computer Engineering
Cumulative GPA: **9.14/10** (**6th** *among 88 students*)

EXPERIENCE

Nanyang Technological University May '17 - August '17
Visiting Researcher under Arvind Easwaran and Anupam Chattopadhyay *Singapore*

· Studied and modeled some well-known attacks on existing Cyber Physical Systems (CPSs). Studied the relative merits of various system modeling frameworks including AADL, Ptolemy and Metro II. Used Metro II to model the Stuxnet attack in it's propagation and attack phases. Demonstrated the challenges in modeling such complex attacks at different layers of abstraction, and the shortcomings with respect to vulnerability analysis in existing CPS modeling frameworks.

Indian Institute of Technology, Bombay May '16 - July '16
Summer intern under Varsha Apte *Mumbai, India*

· Worked on EvalPro, a Django webapp being used in the CSE Department of IIT Bombay for handling computer related assignments, tests, submissions and automated evaluation. Built a "statistics" section showing assignment submission statistics. Added a backend feature for teachers to create scheduled or on-demand assignments. Fixed several front-end bugs to improve the webapps UI/UX.

SCHOLASTIC ACHIEVEMENTS

- Recipient of the Pratibha Eaton Excellence Award for presenting solutions using Augmented and Virtual reality for Eaton power plants (January 2017).
- Recipient of the prestigious Maharashtra Talent Search scholarship.
- Recipient of the Middle School (2006) and High School (2009) State Government Scholarships.
- Percentile score of 99.06 in JEE Mains 2014 among 1.4M candidates.
- Percentile score of 99.93 in HSC State Board Examination 2014 among 500K candidates.
- Reached the finals and represented Maharashtra State in the Computer and Science Quiz competition organized by Computer Society of India in 2011.

PROJECTS

Blind Image Dehazing January '18 - May '18
B.Tech Project under Yuval Bahat *PhD student, Weizmann Institute of Science*

· Implemented the ICCP '16 paper Blind Image Dehazing Using Internal Patch Recurrence. Optimized the algorithm to only consider useful pairs of patches in the image leading to speed improvement. Achieved approximately **20x better** speed for the optimization step in PyTorch as compared to the original MALTAB implementation. Traded off high quality dehazing against speedy recovery of distant objects in an image for real-time applications.

Web-based Monitor and Control of a Bioreactor System August '17 - December '17
Project under Neelima Iyer *Senior Principal Scientist, CSIR-NCL*

· Worked on an Embedded System application (in Django and Embedded C) for remotely monitoring on-site parameters of a bioreactor plant including temperature, pressure, flow and PH value at CSIR - National Chemical Laboratory. Studied and explored various real-time considerations and constraints in a bioreactor SCADA system.

Dynamic Memory Management July '15 - November '15
Data Structures & Algorithms Lab under Abhijit Meenakshi *Assistant Professor, CoEP*

· Designed a model of heap to handle dynamic allocation and reallocation of memory chunks as an improvisation over Kernighan & Ritchie's implementation of a Storage Allocator in their book "The C Programming Language". Wrote my own malloc(), free(), calloc() and realloc() functions in C using system calls. Managed memory obtained from system calls using a singly circular linked-list.

PAPER IMPLEMENTATIONS

Punny Captions July '18 - ongoing

· Implemented (in Python) the NAACL '18 paper Punny Captions : Witty Wordplay in Image Descriptions. This code generates punny captions for any given input image. Currently exploring other ideas for pun generation and expansion of the pun vocabulary.

PERSONAL PROJECTS

- Wrote a set of Python scripts to automatically read registration emails and send personalized e-receipts for the College of Engineering Pune, Model United Nations conference.
- Wrote code to automatically poke people on Facebook using Selenium.
- Made an IMDb rating scraper to allow the user to see the IMDb rating of any movie using Python (BeautifulSoup).

RELEVANT COURSES

- **Computer Science** - Natural Language Processing, Data Structures & Algorithms, Design and Analysis of Algorithms, Discrete Structures & Graph Theory, Programming Languages, Advanced Unix Programming.
- **Mathematics** - Linear Algebra, Ordinary Differential, Univariate & Multivariable Calculus, Vector Calculus, Partial Differential Equations, Experimental Designs and Data Analysis (Statistics).

TECHNICAL SKILLS

- **Strong** - C/C++, Python (with PyTorch, TensorFlow, Django & BeautifulSoup), JavaScript
- **Familiar** - MATLAB, PHP, MySQL
- **Tools** - Git, Phabricator, GDB (Debugger), LaTeX

RESPONSIBILITIES & TALKS

- **Director of Finance, COEP Model United Nations** (2014-16) - Led the Finance team and managed the budget for this internationally recognized conference having over 300 participants from all over India.
- **Mentorship** - Co-organized a seminar to share my research internship experiences and to guide juniors in applying to them. Providing one-on-one mentorship to 3 juniors for their research applications.

EXTRACURRICULAR

- **Debate Club** - Winner at several National and State level debate competitions in British and Asian Parliamentary debate competitions at reputed institutes like Indian Law School, Symbiosis Law School, Symbiosis Arts School and Army Institute of Technology.
- **Art and Drawing** - "A" grade in Intermediate drawing examination conducted by Maharashtra State Government.

- **Music** - Sangeet Visharad (Bachelor of Arts) in Harmonium instrument conducted by Akhil Bharatiya Gandharva Mahavidyalaya. Completed **15 years of training** in Indian Classical Music.
- **Dance** - Performed Arangetram (first stage performance) after completing **8 years of training** in the Bharatnatyam dance form. Passed Praveshika Poorna examination.
- **Sports** - Recipient of many prizes in Swimming, Hockey and Athletics (100 meters, 200 meters and cross country). Winner at the District Level in 100 meter sprint.

REFERENCES

Arvind Easwaran
Assistant Professor
Nanyang Technological University, Singapore
webpage ◇ *email*

Anupam Chattopadhyay
Assistant Professor
Nanyang Technological University, Singapore
webpage ◇ *email*

Varsha Apte
Professor
Indian Institute of Technology, Bombay
webpage ◇ *email*

Vandana Inamdar
Head of Department, Computer Engineering and IT
College of Engineering, Pune
webpage ◇ *email*