Ritvik Prabhu

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Programming Languages: Python, Java, R, C, MATLAB, Javascript

Education

- **Virginia Tech, Blacksburg, VA** **July 2019 – May 2023**
  Major in Computer Science (CS) and Computational Modeling & Data Analytics (CMDA) and **minor** in Mathematics
  Cumulative GPA: 3.72
  Coursework: Introduction to Programming in Python, Software Design and Data Structures, Single Variable Calculus, Multi Variable Calculus, Statistics, Discrete Math, Computer Organization, Math and Statistical Modeling

Technical Skills

- **Programming Languages:**
  - Python (1.5 years), Java (4 months), R (8 months), C (7 months), MATLAB (6 months), Javascript (2 months)
- **Technical Skills:**
  - **Markup Language**: LaTeX (1 year), HTML (2 months)
  - **Technical Tools**: Git, Linux, Unix, Bash, Vim/Vi, x86 assembly, MIPS assembly
  - **Technical Knowledge**: Machine Learning, Artificial Intelligence, Natural Language Processing, Computer Vision, Data Structures, Web Scraping, Computer Organization, Object Oriented Programming, Algorithms, Testing

Research and Projects

- **InfoVis Lab: Undergraduate Research** **May 2021 – Present**
  - Aimed at finding better ways to harvest edamame seeds with less manual labor and more accuracy in harvesting non diseased edamame seeds at the time of harvest.
  - Collaborated with a team of 3 research groups (11 total members) to generate synthetic datasets using GAN models and generating an interactive tools for image classification.
  - Contributed by using interactive Multi Dimensional Scaling and deep learning methods to map the image features and fix bugs and improve current interactive tools to enable human-in-the-loop learning of image classification features.
- **Crawford Labs: Undergraduate Research** **January 2020 – Present**
  - Focused on trying to speed up real time couple cluster calculations of properties while retaining a high level of accuracy in the calculations.
  - Collaborated with a team of 2 other graduate students to utilize reduced scaling techniques such as localized orbital spaces, mixed-precision arithmetic, GPU implementation, and machine learning to speed up real time couple cluster calculations.
  - Successfully reduced the cost of a real-time simulation by about an order of magnitude with the Padé approximant (resolved the spectrum with $\sim$200au of simulation time instead of $\sim$2000au).
  - Contributed by creating algorithms that finds the Full Width Half Max of a signal in the frequency domain, de-noise and dampen the signal in the time domain and also developed time series forecasting algorithms which utilizes LSTM variants.
- **MIPS Assembler** **July 2021**
  - Developed a MIPS assembler in C which handles basic MIPS commands.
  - Used GDB to debug and fix bugs in the code.

Leadership and Awards

- **Co-Leader of CMDA Ambassadors, Academy of Integrated Sciences** **July 2021 – Present**
  - Collaborated with 2 other co-leaders to handle resources and manage events organized around promoting the major among prospective and curious students.
- **Recipient of Luther and Alice Hamlett Research Support** **April 2021**
  - Received research support to work at the InfoVis Lab as an Undergraduate Researcher to implement different Computer Vision algorithms for more accurate and easier crop harvest.
- **First Runners Up in the annual ASA Data Fest** **April 2021**
  - Placed second in the ASA Data Fest in 2021, sponsored by Booz Allen Hamilton, Walmart, Bank of America and Socially Determined, for figuring out drug usage trends for various age groups and the likelihood of misuse (based of certain parameters) using a large volume of data given.
- **Teaching Assistant for CMDA 1984** **August 2020 – December 2020**
  - Collaborated with 10 other TAs to create lesson plans, create grading rubrics, and grade students' assignments.
- **National Science Foundation Fellowship** **May 2020**
  - Recipient of NSF fellowship to work for Crawford Labs over the summer of 2020 for implementing different time series forecasting models to bolster ab initio electronic structure methods.