Sanika Anil Paranjpe

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Education

- **Indiana University Bloomington** — Aug. 2021 - May 2023
  Master of Science in Computer Science - GPA: 4.0/4.0 — *Bloomington, Indiana*
  Courses: *Elements of Artificial Intelligence, Applied Algorithms, High Performance Computing, Computer Vision, Applied Machine Learning, Database Design*
- **Savitribai Phule Pune University** — Aug. 2015 - May 2019
  Bachelor of Engineering in Electronics and Telecommunication - CGPA: 9.56/10 — *Pune India*
  Courses: *Data Structures and Algorithms, Digital Image and Video Processing, Artificial Intelligence, Machine Learning*

Technical Skills

- **Programming**: Python, Numpy, Matplotlib, Pandas, C-sharp, C, SQL, JavaScript, MPI, OpenMP
- **Tools**: Agile Methodologies, Jira, Power Platform, GIT, SSIS
- **Developer Tools**: Jupyter Notebooks, DEVCpp, Putty, Linux, Microsoft Dynamics CRM, MS Visual Studio

Experience

- **Pragmasys Consulting LLP** — August 2019 - March 2021
  Software Engineer — *Pune, India*
  - Customized an application in JavaScript and uploaded it on the Microsoft Azure server for the final approval.
  - Developed console applications to retrieve customer data in C-sharp. Contributed in automating and optimizing an interface to collect data using SQL server integration services(SSIS) and SQL queries to decrease data collection time by half
  - Responsible for writing the Project Documentation including weekly report and master system design document and presenting it to client.
- **Maharashtra Institute of Technology** — August 2020 - December 2020
  Teaching Assistant — *Pune, India*
  - Conducted sessions to assist Dr Anuradha Phakde in teaching the Digital Image and Video Processing course

Academic Projects

- **K-Means Clustering Algorithm using MPI in Python**: | *Python, MPI* — October 2021 - December 2021
  - Parallelized the K-means clustering algorithm using Message Passing Interface on a supercomputer. Incorporated Analysis of speedup achieved, strong scaling and weak scaling
  - Compared to serial execution, achieved speedup of up to 5 times while using 24 cores of BigRed3 Supercomputer at IU Bloomington on dataset of size 20000.
- **Ice Tracking using Viterbi Algorithm**: | *Python, Probabilistic Models* — December 2021
  - Synthesized the Viterbi Algorithm to work on radar echogram images from polar icecaps to detect the ice-rock and air-ice boundaries. Compared results obtained by Naive Bayes method and Viterbi Algorithm.
- **The Game of Quintris (Tetris)** : | *Python,Heuristics, Adversarial Algorithms* — November 2021
  - Implemented Tetris like game in Python using Depth Limited A* search and Expectimin Algorithm.
  - Worked with 3 heuristic functions to find the most beneficial placement for the falling piece with a goal of reaching highest possible score (reached till 1109)
- **Road Trip! (Path Finding)** : | *Python, Heuristic Search* — October 2021
  - Designed a path finding algorithm similar to Google Maps based on GPS and road data using A* search.
  - Algorithm is designed to minimize cost functions such as distance, time, etc as specified by the user.
- **Design and Simulation of All Optical Shift Register using MRRs**: | *PhoeniX software* — June 2018-May 2019
  - Developed a 4-bit Shift register using optical D-flipflop and wave splitter.

Publications

- **Micro-ring resonator based all-optical Arithmetic and Logical Unit (Jul 9, 2021 Optik)**:
  - Contribution of optical ALU without wave splitters (leading to reduction in losses by 3 times) to the development of future high performance computing systems

Honors and Awards

- 1st prize in BE project competition at 'Texephyr'19', a technical event in college
- Stood 3rd in Savitribai Phule Pune University(affiliated colleges) for Bachelor of Engineering in Electronics and Telecommunication

Co and Extra curricular Activities

- President of Maharashtra Institute of Technology Electronics and Telecommunication's Association of Study Skills
- Conducted a 2-day hands-on workshop on DSP 6748, TIVA C-series and MSP-430 and applications in advanced AI