MAHESH BHOSALE

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EDUCATION
Doctor of Philosophy, 08/2021 (Ongoing)
University at Buffalo, The State University of New York
- Areas of research: Cross-modal and cross domain Image Registration.
- **Google CS Research Mentorship Scholar 2023.**

Bachelor of Technology, 05/2017
Walchand college of engine engineering
- Conferred Honorable mention ACM ICPC 2015 Regionals, Amritapuri.
- Bestowed Runner-Up Best project award 2014 for Twitter Sentiment Analysis, WCE Sangli.
- Awarded First Runner-Up at Mindspark 2014, College of Engineering Pune (A national level coding challenge 700 participants) and Bleed-code Hacker-Earth programming challenge.

TECHNICAL SKILLS
- **Languages**: Python, C++, C, Java, Shell scripting, R (Novice).
- **Libraries and DBs**: PyTorch, Ros, Sitk, Scikit-learn, NumPy, Pandas, Matplotlib, TensorFlow, MySQL.
- **Tools**: VScode, Pycharm, Jupyter, System-tap, crash (core dump analysis), gdb, AWS.

WORK EXPERIENCE
Graduate Research Assistant, Research Foundation for SUNY, Buffalo, NY, USA, 05/2022 – Present
- Novel Multi-modal 3D medical Image registration methods guided by Dr. David Doermann in A2IL lab.

Software Engineer, Veritas Technologies LLC, Pune, India, 07/2017 – 06/2021
- Developed a novel algorithm for predictive execution of resource-intensive tasks. Demonstrated a paper at Veritas's annual technical conference, named IDLEBOT. Bestowed Certificate of Merit 2020.
- Developed Ransom-ware Detection tool modeling file change log in Veritas Filesystem (VxFS). presented project in Veritas's annual Hackathon, 2021.Lead effort to start ML Systems group in Org.
- Debugged in kernel and user mode on RHEL, SLES, Solaris, and AIX platforms. Worked on migrating filesystem from little-endian to big-endian system and fixed bugs in Veritas Filesystem (VxFS).

Engineering Intern, Veritas Technologies LLC, Pune, India, 01/2017 – 06/2017
- Reduced execution time of variants of 'ls' command by 20% using directory inode read ahead algorithm.

TEACHING EXPERIENCE
Graduate Teaching Assistant, University at Buffalo, Buffalo, NY, USA, 02/2022 – 10/2022
- Assisted students in CSE 702 Automated Analysis of Sporting Event Videos with Dr. David Doermann. Reviewed and presented papers on Muti-athlete tracking, re-identification, and highlight generation.
- Assisted Dr. Farshad Ghanei to guide students of CSE 4/521 Operating systems in programming of Unix-based OS - Pintos. Conducted weekly office hours to solve doubts and record progress.

PROJECTS
- **Action spotting SoccerNetv4 (2023 Ongoing)** – Using transformer-based player tracking to aid detect the 17 actions such as goal, penalty, foul etc. in soccer video dataset.
- **Line-Former (2023)** – Transformer based instance segmentation for document chart data extraction achieving SOTA results across many benchmark chart datasets. Submitted the paper to ICDAR 2023.
- **ROS projects (2022)** – Implemented BUG2 obstacle avoidance, Camera calibration and Monocular VO, A* path planning, Bays filter for state estimation for ClearPath Husky and Gazebo.
- **Re-identification SoccerNetv3 (2022)** – Soccer player re-identification leveraging two-stream (RESNET + OpenPose sub-network) deep neural network using layer-wise triplet similarity loss. Employed Bilinear pooling to pool features from two streams. Beat SOTA OSNET by 2.1% in MAP and 1.8% in IOU.
- **Pintos (2021)** – Implemented process schedulers (Priority and MLFQS), system calls for filesystem interfaces (read, write, create etc.) in Unix-based OS.
- **Text Chat (2021)** – Developed multiclient chat application over TCP using socket programming.
- **IDLEBOT (2018-2020)** – Developed command line tool to recommend optimal time slot for execution of resource-intensive tasks for Veritas products using LSTM, FB-Prophet, and ARIMA. The proposed novel "Weighted time-slot selection algorithm" to select an optimal slot achieved a 56% reduction in exec. time.