CHIRAG RASTOGI

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EDUCATION

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN *May 2023*
Bachelor of Science in **Computer Engineering** GPA 3.94/4.0
James Scholar and Deans List

SKILLS

LANGUAGES*:* Python*,* C, C++, SQL, x86 Assembly, R, LC3 assembly, MATLAB, CSS, HTML, JavaScript, Java
TECHNOLOGIES/FRAMEWORKS: WebGPU, Cuda, ROS, Tensorflow, Pytorch, Keras, OpenCV, Jupyter, Flask, Scikit-learn, PyMongo, Docker, Tornado, AWS, Amazon ECS, Google Cloud (AutoML API, NLP API), GIT, Azure DevOps, RabbitMQ, Celery
DATABASES: MySQL, Snowflake, SQLite, MongoDB
SOFTWARES: Visual Studio, Pycharm, Sublime, Arduino IDE, Autodesk Fusion 360

PUBLICATIONS

- Y. Chen, C. Rastogi, and W.R.Norris, "A Convolutional Neural Network Based Vision-Proprioception Fusion Method for Robust UGV Terrain Classification" in *IEEE Robotics and Automation Letters,* doi: 10.1109/LRA.2021.3101866. Accepted for 2021 IEEE/RSJ International Conference on Intelligent Robots and Systems: *Paper ThCT6.7*
- S. Balasubramanian, A. Rajput, R. W. Hascaryo, C.Rastogi, and W.R.Norris, "Comparison of Dynamic and Kinematic Model Driven Extended Kalman Filters (EKF) for the Localization of Autonomous Underwater Vehicles." **Preprint** for ASME Journal for Mechanisms and Robotics, arXiv:2105.12309

EXPERIENCE

CATERPILLAR, CHAMPAIGN *Illinois, USA*
Corporate Software Engineering Intern *JUN 2020 - Ongoing*

- Automated weekly analyses and improved statistical processes by building methods to reduce runtime by >500% while obtaining data requested by different business partners and product groups, with greater accuracy
- Reduced costs by ~66% while increasing scalability by migrating scripts onto the AWS data pipeline, building tables on the cloud data warehouse Snowflake, and using Azure DevOps for version control, testing, and deployment
- Performed correlation studies, automated the process of running statistical tests, and stationarized data to publish forecasts on the production database and website
- Created constraint parsers for backend trend tools and verified it by building the unit test suite

AUTONOMOUS AND UNMANNED VEHICLE SYSTEMS LABORATORY, UIUC *Illinois, USA*
Undergraduate Researcher (under Dr. William Robert Norris) *OCT 2019 - Ongoing*

- Built a system to create a local map on OCTOMAP for real-time obstacle detection, terrain masking, and segmentation
- Created and ran simulations using UUV simulator, a Gazebo plugin, for autonomous submarines by implementing different algorithms for controllers and compared the results
- Assisted in the development of an autonomous bot for a graduate class by building Lidar modules using ROS

IBM-ILLINOIS CENTRE FOR COGNITIVE COMPUTING SYSTEMS RESEARCH *Illinois, USA*
Undergraduate Researcher (under Dr. ChengXiang Zhai) *AUG 2021 - Ongoing*

- Researching Semantic Cross-Modal Contrastive Learning and Information Forests by building Augmented Networks with Denoising modules to improve accuracy, conducting Entity Extraction and parallelizing data collection tasks

SHRI G. S. INSTITUTE OF TECHNOLOGY & SCIENCE *Indore, India*
Research Assistant (under Dr. Arun Parakh) *JUN 2018 - MAR 2019*

- Authored a short thesis on an IOT based adaptive multiphase traffic controller that used vision-based analysis and processed on LOGIC to optimize and simulate improved traffic flow

PROJECTS

AIR, HACKILLINOIS *University of Illinois at Urbana Champaign*

- Won best financial hack, presented by Capital One, for desigining and developing a program that tracks fingers to create and sign usable checks in the air, using Google Cloud Vision and Checkbook.io APIs

WEARABLE DEVICE FOR ALZHEIMERS PATIENTS *Mumbai, India*

- Prototyped a wearable device that prompts Alzheimer's patients with information on the person they are facing, sends push notifications, and alerts family members in certain cases

ACTiVITIES AND HONORS

- Won the Caterpillar 2020 CIO award and Currently a Finalist for the Chairman Award
- UIUC Formula Electric Data Analysis and Quantitative Analysis Team Lead(2020) / Member(2019/2021)