Abhi Kamboj

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ACADEMIC PROFILE

University of Illinois at Urbana-Champaign (UIUC)	*Doctor of Philosophy in Electrical and Computer Engineering (GPA 3.58/4.0)*	**May 2026**
	Bachelor of Science (GPA 3.87/4.0)	**May 2021**
	- in Computer Engineering	
	- in Innovation, Leadership, and Engineering Entrepreneurship	

Honors: *Leadership Certificate, Chancellor's Scholar, James Scholar, IEEE Eta Kappa Nu (HKN), Tau Beta Pi Engineering*
- Key Courses: Deep Learning Hardware, Safe Autonomous Driving, Computer Vision, Learning Based Robotics

Study Abroad at Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland   **Aug 2019 - Dec 2019**
- Key Courses: Machine Learning, Embedded Systems, Computer Networks, Algorithms, Computer Security

RESEARCH PROJECT EXPERIENCE

Machine Learning Research Intern at Netradyne, San Deigo, CA   **May 2022 – Aug 2022**
- Developed and tested a novel transformer based neural network architecture for multi object tracking

Robust Autonomous Driving Through Sensor Fusion, UIUC   **Jan 2022 – May 2021**
- Investigated methods to fuse radar, lidar, and camera data for perception in fog/rain, under Dr. Deming Chen

Human Centered Autonomy Lab, UIUC   **Aug 2020 – Dec 2021**
- Created multiagent grid-world simulations and explored effective robot speech interaction via a user study
- Presenting paper titled *Audio Communication for Supervising Fleets of Robots* at IEEE Ro-MAN 2022 in Italy

Machine Learning Building Classification, EPFL   **Oct 2019 - Dec 2019**
- Devised a building classification system in python for a civil engineering lab by identifying the buildings' windows to facade ratio with Torchvision CNNs and using images of Zurich from the Google Streetview API

NSF REU in Robotic Sensor Networks Lab, University of Minnesota, Twin Cities   **May 2018 - Aug 2018**
- Developed an autonomous indoor navigation system for a Create2 iRobot with a lidar, under Dr. Volkan Isler
- Implemented and studied algorithms e.g., random trajectory generation, A*search, Kalman filters, and SLAM
- Actualized Q-learning algorithms in VREP robot simulator and further studied reinforcement learning

PROFESSIONAL EXPERIENCE

Embedded AI Intern at Nvidia, Santa Clara, CA   **May 2021 - Aug 2021**
- Surveyed state of the art scene text recognition (STR) models then implemented them on a Jetson AGX Xavier
- Optimized opensource PyTorch STR models using TensorRT and benchmarked the throughput and latency
- Published on NVIDIA-AI-IOT/scene-text-recognition github and showcased work on Jetson AI Labs (3k viewers)

Big Data Platform Engineering Intern at Western Digital, San Jose, CA   **May 2020 - July 2020**
- Enhanced internal applications and tools, revitalizing and standardizing python code and Docker containers
- Created 3 Splunk dashboards to monitor web traffic and user logins, streamlining the team's efficiency

Software Engineering Intern at Collins Aerospace, Cedar Rapids, IA   **Jun 2019 - Aug 2019**
- Developed and booted a Linux configuration for the Ultrazed EV Xilinx processor allowing for company-wide testing and development of operating environments and waveform applications for software defined radios
- Revitalized 6 Linux drivers using pc-lint debugging, decreasing potential software malfunctions in the radios

LEADERSHIP AND EXTRACURRICULARS

ECE 220 Computer Systems & Programming Teaching Assistant, UIUC   **Aug 2021 - May 2022**
- Taught advanced use of LC-3 assembly, essential C programming concepts, and basic object-oriented design used in modern systems through individually led office hours and lab sections of 40 students
- Formulated rigorous exam questions on fundamentals like recursion and assembly code for 400+ students

ECE 385 Digital Systems Course Assistant, UIUC   **Aug 2020 - May 2021**
- Guided students in learning SystemVerilog programming and FPGA concepts such as state machines, simulations, testbenches, synchronization, memory layout, timing analysis, etc. through office hours

IEEE Eta Kappa Nu (HKN) Tutor, UIUC   **Aug 2018 - May 2021**
- Led tutoring sessions for 6 different courses e.g., Intro to Computing, Engineering Probability, Semiconductors
- Volunteered locally, teaching middle/high school students how to solder circuits and how to code in scratch

PULSE Competitions Committee Director, UIUC   **July 2019 – May 2021**
- Coordinated a university wide coding competition and hardware hackathon with more than 80 participants
- Created 10 HackerRank coding questions involving advanced topics e.g., dynamic programming, graph theory

SKILLS

C++/C, Python, PyTorch, Docker, TensorRT, SystemVerilog, ROS, Scala, Java, x86 Assembly, MATLAB, Splunk