HAMZAH KHAN

340 E. Foothill Blvd #370, Claremont, CA 91711 • hikhan@hmc.edu • 503-562-9690 • hamzahkhan.me

EDUCATION

Harvey Mudd College, Claremont, CA
B.S. Individual Program of Studes in Robotics — Expected May '18

MAJOR AND RELEVANT COURSEWORK

Robotics Thesis (Fall '17-Spring'18) | Artificial Intelligence | Machine Learning | Operations Research (Fall '17) | Adv. Algorithms (Fall '17) | Differential Geometry (Fall '17) | Bayesian Statistics (Spring '18') | Autonomous Robotics (Spring '18') | Microprocessor Systems Design | Adv. Systems Engineering | Computability & Logic | Discrete Mathematics

SKILLS

Programming Languages: Python, C++, MATLAB, JavaScript, Java, LaTeX
Tools: pytorch, AWS, Version Control, Unix CLI, Solidworks, SystemVerilog, kiCAD, HSPICE, Verilog-A
Machining/Electrical: PCB Design, Lathe, Mill, ShopBot CNC, Raspberry Pi, Arduino, FPGA
Languages: Urdu (Familiar), Arabic (Familiar), Spanish (Proficient)

PROJECT EXPERIENCE

Face Tracking T-shirt Cannon Turret, Microprocessors and AI Final Project — Sep '16 - Dec '16
- Built a rotating base and pneumatic air system to shoot t-shirts from a two-axis cannon
- Designed aiming logic and circuitry to control motors with a Raspberry Pi and FPGA
- Wrote and trained a face-detection AI with OpenCV to aim the t-shirt cannon

SpaceX Hyperloop Competition Openloop Alliance, Electrical Engineer — Jun '16 - Oct '16
- Designed PCBs and low-level code to produce, sample, and translate pod sensor input for a Beaglebone Black
- Created and ran tests to profile the output of an in-house photoelectric sensor

Rocket Altitude Tracking with Kalman Filter, E80 Experimental Engineering Project — Jan '15 - May '16
- Led a team of four to design a sensor package for tracking a model rocket's flight altitude
- Implemented and calibrated a Kalman Filter to accurately track the team's rocket

Mudd Aerial Systems Team, Test Quadcopter Subteam — Nov '14 - May '15
- Developed a quadcopter as an image processing test environment for autonomous plane development
- Integrated camera and GPS onto the device to allow for a broader test environment

FRC Scouting Application, FRC Team 1540, Portland OR — Jan '14 - Apr '14
- Developed a node.js web server running on a Raspberry Pi connected via Ethernet to six Nexus 7 tablets
- Provided data on opponent strategies from 6 real-time sources that led to 37.5% more wins

WORK EXPERIENCE

Amazon Prime Air Hardware Development Engineer, Seattle, WA — May '17 - Aug '17
- Created software, hardware, and RF designs for a novel automated test and evaluation infrastructure for new sensing technologies in close collaboration with Amazon research scientists
- Enabled data-driven decision making in a groundbreaking, research-focused project within Prime Air

Grader, Lab Proctor, and Machine Shop Proctor, Harvey Mudd College Engineering Department — Jan '16 - Current

Research in Simulating Phase Change Memory, DARE lab with Professor Matthew Spencer — Jan '16 - May '17
- Designed a simulation of phase change memory using HSPICE and Verilog-A
- Developed a super-dense 1 diode - 1 PCM memory array and accompanying driver circuits
- Wrote a paper on research results, seeking publication in Spring '17

Facebook Software Engineering Intern, Menlo Park, CA — May '15 - Aug '15
- Identified slow points in software crucial for serving Facebook's most profitable ads customers (top 1%)
- Brainstormed and designed backend C++ software that would increase this speed 10x-100x
- Wrote algorithms to expand Facebook advertisers' abilities to target audiences

Grader and Tutor, AI and Algorithms, Harvey Mudd College Computer Science Department — Jan '15 - Current

Regional Hackathon Manager, StudentRND — Feb '14 - Nov '15
- Created and executed an event plan, while assisting attendees with debugging software projects
- Secured over $7,000 in sponsorships from companies in San Francisco and Portland, OR

Neuroscience Software Intern, Oregon National Primate Research Center, Hillsboro OR — Jun '13 - Aug '13
- Developed a full stack JavaScript web app to host microarray data visualizations and references

AWARDS AND ACTIVITIES

1st place, MuddHacks 2016 | 2016-17 Dorm Mentor | 1st place, People's Choice at 5C Fall 2014 Hackathon, Best Game Fall 2015 | 5C Muslim Students Association, VP | Mudd Rocketry Club | Award-winning FIRST Robotics Team 1540, Manager | HMC Phonathon Manager | Recreational Tennis | Hackathon Organizing | Strategy Games