HAMZAH KHAN

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EDUCATION

Harvey Mudd College, Claremont, CA
B.S. Engineering and Computer Science   Expected May '18

RELEVANT COURSEWORK

Microprocessor Systems Design │ Engr. Clinic (Spring '17) │ Digital and Comp. Engr. │ Elec. and Mag. Devices │ Adv. Systems Engineering │ Artificial Intelligence │ Algorithms │ Data Structures │ Computability & Logic │ Engr. Design & Manufacturing │ Discrete Mathematics

SKILLS

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

PROJECT EXPERIENCE

Face Tracking T-shirt Cannon Turret, Microprocessors and AI Final Project   Sep '16 - Current
  – 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 theano and AWS to aim the t-shirt cannon

SpaceX Hyperloop Competition Openloop Alliance, Electrical Engineer   Jun '16 - Current
  – 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

Systems Engineering Grader, Harvey Mudd College Engineering Department   Sep '16 - Current
Machine Shop Proctor, Harvey Mudd College Shop   Jan '16 - Current
Research in Simulating Phase Change Memory, DARE lab with Professor Matthew Spencer   Jan '16 - Current
  – 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
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, Harvey Mudd College Computer Science Department   Jan '15 - Dec '15
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