Nikhil Kharbanda

EDUCATION

Bachelor of Engineering, Computer Systems — **September 2015 – April 2021**
Carleton University, Ottawa ON

TECHNICAL SKILLS

- Coding: Java, C/C++, HTML, CSS, Python
- Tools: MATLab, Simulink, GitHub, AutoCAD
- Development Experience with Raspberry Pi, FPGA and microprocessors

WORK EXPERIENCE

Engineering Intern — **May 2019 – August 2019**, **May 2018 – August 2018**, **May 2017 – August 2017**
CBC - Canadian Broadcasting Corporation (Toronto)

- Developed innovative designs for audio / video systems
- Built concept proposals for client reviews
- Verified reliability of system performance against design criteria
- Monitored project schedules & budget versus project scope

Computer Systems Councillor — **September 2018 – April 2019**
CSES - Carleton Student Engineering Society (Ottawa)

- Informed CSES of important updates of Engineering program
- Assisted students in connecting with appropriate departments

ENGINEERING DEVELOPMENT PROJECTS

Raspberry Pi MirrAI – Embedded System Engineering Project (Capstone Project)

- Built Smart Mirror using Raspberry Pi Embedded System and Machine Learning algorithm
- Responsible for designing User Interface utilizing JavaScript and Python:
  - Deliver daily events summary from Google Calendar
  - Propose *Dress suggestions* based on weather reports etc.
  - Touchscreen enabled Spotify Controller
- Assisted with machine learning algorithm development using Python and Google Collab
- Responsible for applying for university funds and maintaining expenses within budget of $2000

Elevator System simulator in Java (Carleton University)

- Used Java threads to run three elevator subsystems, scheduler subsystem, and floor subsystem
- Developed communication between three subsystems utilizing UDP networking
- Achieved goal of building fully functional elevator system

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ADDITIONAL PROJECTS

MATLAB & Simulink

- Used MATLAB and Simulink to simulate and analyze:
  - Servo systems described as Order 2 differential equations
  - Modeling of inverted pendulum
  - Simulated transmission of various signals in time & frequency domains (e.g. AM-DSB-SC/C)

Automated RC car

- Created Remote Controlled car with on-board rechargeable battery pack that autonomously drove to homemade "charging station" using Arduino and Raspberry Pi
  - Utilized Arduino to detect battery level on the car
  - Used Raspberry Pi to navigate car avoiding obstacles
  - RC car automatically steered to charging station when on-board battery level detected low
  - Charging station programmed to lower charging arm when RC car presence detected

Skype-Facetime System (CBC)

- Allowed interoperability between news anchors using Skype and FaceTime video conferencing platforms around the world and within CBC studios
- Analyzed interoperable issues and designed cost-effective and practical solutions to share both Skype and Facetime audio/video feeds using centralized router
- Provided an innovative solution that eliminated the need for any initial call setups and significantly reduced the latency between the newsroom and remote anchors

Control Room Centralization (CBC)

- Assisted with centralized Control Room project in Toronto to make broadcasting news more efficient and versatile from remote CBC locations around Canada
- Configured and tested router inputs and outputs
- Verified system performance and ensured identified deficiencies were corrected

CERTIFICATIONS

- Completed "Introduction to Databases" and "Advanced PC Network Security" certifications from University of Waterloo (2021)
- Completed Microsoft Azure AI-900 certification course held by the University of Calgary (2021)
- Enrolled in University of Toronto's Coding Bootcamp

REFERENCES

References available upon request.

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