Kshitij Khandelwal

About me

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interests:	Neural Computing, Electronics, Signal Processing, Computer Vision

Education

Current — BE. (Hons.) in Electrical and Electronics Engineering
Aug '15 - Jul '19 (Exp.) — **Birla Institute of Technology and Science, Pilani**, Pilani, India
CGPA *8.61/10* (Semester IV)

University Coursework

Electrical Engineering

Electrical Sciences
Electrical Machines
Control Systems
Neural Networks and Fuzzy Logic
Power Systems (Ongoing)

Electronics Engineering (Analog)

Electronic Devices
Micro-electronic Circuits
Analog VLSI Design
Analog Electronics (Ongoing)
Power Electronics (Ongoing)

Electronics Engineering (Digital)

Digital Design
Computer Programming
Microprocessors and Interfacing
Computer Architecture
Digital VLSI Design

Communications Engineering

Signals and Systems
Communication Systems
Digital Signal Processing

Mathematics

Multivariate Calculus & Vector Fields
Probability & Statistics
Linear Algebra & Complex Analysis
Differential Equations
Optimization

Sciences

Principles of Economics
Mechanics, Oscillations and Waves
General Chemistry
General Biology
Thermodynamics

Independent Coursework (Online)

Completed

Neural Networks for Machine Learning	Geoffrey Hinton, University of Toronto
Reinforcement Learning	David Silver, University College London

Ongiong

CS231n: Convolutinal Neural Networks	Stanford University
Deep Learning for NLP	Oxford University

Projects

Current – Dec '17
Satellite Image Super-Resolution Using GANs
Independent, BITS Pilani, India
The Project aims at testing the SR-GAN method for Image Super Resolution on the LANDSAT-7 Satellite Imagery Dataset using Generative Adversarial Networks and thereby develop a computationally efficient technique for Satellite Image Super-resolution

Oct - Nov '17
LPC for Formant Analysis of Concurrent Vowels
Course Project (Digital Signal Processing), BITS Pilani, India
The project focuses on understanding the effects of noise on the formant representations of both single and concurrent vowels and using Linear Predictive Coding (LPC) and Speech Spectrum Shaped Noise. Further, an attempt was made to understand which vowels (both single and concurrent) are more susceptible to noise. (Github)

Oct - Nov '17
Actor-Critic Model for Playing Atari Games
Course Project (Neural Networks & Fuzzy Logic), BITS Pilani, India
The project focuses on developing a comparison between using Actor-Critic Models and Generative Adversarial Networks for learning to play Atari Games. The games used for this purpose were Open-AI Gym's Cartpole-V0 and Lunar Lander.

Oct - Nov '17
Design of a High Gain Two Stage Telescopic Operational Amplifier
Course Project (Analog & Digital VLSI Design), BITS Pilani, India
The project involved designing a high gain two stage telescopic operational amplifier with a phase margin of 60 degrees, ICMR from 0.9V to 2.2V for a VDD of 2.5V and a 3 dB bandwidth of 100 KHz. The project was completed in LT Spice.

May - Jul '17
Design of Low-Pass Microstrip L-Band Filter
Internship Project, Solid State Physics Laboratory (SSPL), Defence Research & Development Organization (DRDO), New Delhi, India
The Project was towards the fulfillment of a summer research internship at SSPL-DRDO. It involved design of an optimum L-Band Low-Pass Filter, EM Simulation, and fault-analysis of the same. (Certificate)

Jan - Apr '17
Soft Computing in Electromagnetics
Study Project (Dr. Navneet Gupta), BITS Pilani, India
Optimization of Gain and Directivity of Microstrip Patch Antenna Arrays using Artificial Neural Networks and Bacterial Foraging Optimization. (Letter of Recommendation)

Skills

Programming

MATLAB • Embedded C • Verilog • Python (numpy, scikit-image, scikit-learn, tensorflow, openCV, pyGTK) • Assembly (MASM and DebugX) • Shell • Perl • HTML • CSS • LaTeX

Software

Cadence • Agilent ADS • LTSpice • iVerilog • NI LABVIEW • COMSOL

Work Experience

Current
Apr '17

Control Systems Engineer at Hyperloop India, India

Worked on Control Algorithm for Braking and Trajectory of the OrcaPod. Current work involves developing the EM Model for Braking. Hyperloop India is the only Indian team and one of the only 24 University teams worldwide to have presented their Pod at **SpaceX Competition Weekend II, 2017 in Los Angeles, CA.** Hyperloop India is currently working towards the SpaceX Competition Weekend III, 2018.

May - Jul '17

Summer Research Intern at Solid State Physics Laboratory (SSPL - DRDO), New Delhi, India

Worked on designing Microstrip Filters for RF Applications. Designed, simulated and optimized a L-Band Microstrip Low Pass Filter using Agilent ADS.

Affiliations

Current
Aug '15 - Present

Chair (Operations) at ACM Student Chapter, BITS Pilani, India

• Won the Best Association for Computing Machinery (ACM) India Student Chapter Award, thrice in a row. • Supervised Special Interest Groups on Cryptography and Linux.

Current
Aug '17 - Present

Senior Student Representative at Codechef Campus Chapter, BITS Pilani, India

• Re-established the inactive campus chapter. • Competitive Programming SIG

Aug '15 - Mar '16

Teaching Volunteer at National Service Scheme (NSS), BITS Pilani, India

• Volunteered for Junoon, a nation-wide sports meet for the specially-abled. • Volunteered to set-up the annual Blood Donation Camp, BITS Pilani.

Academic Achievements

2013 National Talent Search Examination Scholarship, NCERT, Class X
2011 National Talent Search Examination Scholarship, NCERT, Class VIII

Languages

English: Fluent
French: Basic Knowledge
Hindi: Fluent (Mother-tongue)
Marathi: Fluent

Interests & Hobbies

Interests
• The Hyperloop • Nanosatellites
• Computer Vision • Generative Adversarial Networks • Reinforcement Learning
• VLSI Design and Architecture • Biomedical Signal Processing

Hobbies
Writing: • Poems • Short Stories • Shell Scripts
Playing: • Football (fullback) • the Bass Guitar
Reading: • Manga • Fiction (Historic, Scientific) • World History • Newspapers
Listening to: • 70's Rock music • Djent • Melodic Death Metal • Indie Music