Aditya Wagh

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Education

- **Birla Institute of Technology and Science (BITS), Pilani** — **Pilani, India**
  Bachelor of Engineering with Honors in Electronics and Instrumentation, GPA*: 5.55/10* — *Aug 2015 – Jul 2019*
  Relevant coursework: Computer Programming, Digital Design, Microprocessors and Interfacing, Computer Architecture, Discrete Mathematics, Neural Networks and Fuzzy Logic, , Digital Signal Processing, Probability & Statistics,
- **LVH Arts, Science & Commerce College** — **Nashik, India**
  Higher Secondary Ceritificate, MSBSHSE, Marks*: 85.69%* — *Aug 2013 – June 2015*
- **Symbiosis School** — **Nashik, India**
  All India Secondary School Examination, CBSE, GPA*: 10/10* — *Jun 2009 – May 2013*

Technical Proficiency

- **Development Languages** Python, C, C++, MATLAB, Shell, LaTeX, HTML, CSS, JavaScript
- **Tools, Frameworks and Libraries** Keras, Tensorflow, OpenCV, Git, MATLAB, Simulink, LabVIEW, React, Bootstrap

Work Experience

- **Integrated Systems Lab** — **Central Electronics Engineering Research Institute, Pilani**
  Undergraduate Research Assistant — *Jul 2018 – Dec 2018*

  Project: Detection of faulty power transmission lines using Region Proposal Convolutional Neural Networks(RCNNs)
  - Strategized and contributed in development of software pipeline to annotate powerline data
  - Responsible for modelling, training and optimising a Convolutional Neural Network to detect healthy power lines.
  - Trained a masked region proposal convolutional neural network having a ResNet-101 and FPN Backbone.

- **IT Department** — **Apras Polymers & Engineering Co.Pvt. Ltd, Nashik**
  Intern — *May 2018 – Jul 2018*

  Project: Detection of faulty power transmission lines using Region Proposal Convolutional Neural Networks(RCNNs)
  - Project focused on decreasing costs and increasing safety of inspecting power lines by replacing helicopter inspection with drones.
  - Part of a team responsible for annotating a dataset of 8000 RGB and Infrared images of power transmisison cables.
  - Responsible for modelling, training and optimising a Convolutional Neural Network to detect healthy power lines.
  - Trained a masked region proposal convolutional neural network having a ResNet-101 and FPN Backbone.

- **IT Department** — **The Ramco Cements Ltd, Jaggayapeta**
  Intern — *May 2017 – Jul 2017*

  Project: Detection of faulty power transmission lines using Region Proposal Convolutional Neural Networks(RCNNs)
  - Project focused on decreasing costs and increasing safety of inspecting power lines by replacing helicopter inspection with drones.
  - Part of a team responsible for annotating a dataset of 8000 RGB and Infrared images of power transmisison cables.
  - Responsible for modelling, training and optimising a Convolutional Neural Network to detect healthy power lines.
  - Trained a masked region proposal convolutional neural network having a ResNet-101 and FPN Backbone.

Projects

- **Oriented Object Detection on Aerial Images (2018)**
  - Designed a signal conditioning circuit for a microphone using OPAMPS.
  - Utilised the condenser microphone as a capacitance in the RC Filter Circuit.
  - Interfaced the circuit with the computer using NI-DAQmx data acquisition card and interpreted noisy signals in LabVIEW.
- **Variable Computation in Recurrent Neural Networks (2017)**
  - Modified a RNN model to make it learn to vary the amount of computation according to the sequence that they process.
  - Implemented a scheduler for the RNN unit which decides the computation required at the current timestep.
  - Reduced the number of operations for bit-level language modelling to around 50% compared to normal RNN unit.
- **Microphone Signal Conditioning System (2017)**
  - Designed a signal conditioning circuit for a microphone using OPAMPS.
  - Utilised the condenser microphone as a capacitance in the RC Filter Circuit.
  - Interfaced the circuit with the computer using NI-DAQmx data acquisition card and interpreted noisy signals in LabVIEW.
- **Finite Impulse Response filter design using an adjustable window filter (2017)**
  - Implemented an adjustable window function based on the combination of Blackman and Lanczos window.
  - Achieved a 75% better better side-lobe roll off ratio than Lanczos window.
  - Denoised an ECG Signal using this filter.

Volunteer Experience

- **Vice-Chairperson** *Jul 2017 - May 2018*
  IEEE Student Branch, BITS Pilani

  Organised IEEE affiliated events like conclaves, workshops and various technical events throughout the year.
  - Worked on promoting IEEE Student memberships in the campus by organising membership drives explaining it's benefits.
  - Responsible for setting up the IEEE hosted website for the chapter.
  - Conceived the organisational hierarchy of the chapter, introducing various managerial and technical posts.
  - Authored and published the first issue of IEEE Insight, the monthly newsletter of the chapter.

- **Member, Governing Council(GC)** *Aug 2018 - July 2019*
  Society for Students Mess Services, BITS Pilani

  Part of the Quality, Health & Safety Environment(QHSE) and Human Resource(HR) committee
  - **Mess Representative:** Responsible for sanctioning leaves of the workers, collecting feedback and taking necessary actions.
  - **QHSE:** Drafted a QHSE framework for SSMS activities and conducted regular audits every semester.
  - **HR:** Responsible for performance appraisals, providing education/medical loans and managing internal worker conflicts.

Certifications

- **Introduction to Python** Coding Ninjas
- **Mathematics for Machine Learning** University College London (UCL), Coursera
- **Deep Learning** deeplearning.ai, Coursera
- **Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning** deeplearning.ai, Coursera
- **Convolutional Neural Networks in TensorFlow** deeplearning.ai, Coursera