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Applied Researcher, Deep-Learning Enthusiast, Seasoned Full-Stack Developer

I gained applied research experience related to Deep Learning and Computer Vision during my masters and also devoted time to topics related to Android and HCI. I am also an expert in web technologies from my past life. I am constantly looking for new opportunities to work with amazing people that help me grow both, personally and professionally.

DEVELOPMENT STACK

- Google AppEngine/Heroku (PaaS)
- Python/Node (Prototyping)
- JavaScript/HTML (Full-Stack)
- Kotlin/Java (Android)
- Numpy/Tensorflow (Machine Learning)
- OpenCV (Computer Vision)

EDUCATION

M.Sc. Applied Computing - University Of Toronto. *September 2016 — December 2017*

- Introduction to Machine Learning.
- Creative Applications for Mobile Devices
- Communication for Computer Scientists
- Human-Computer Interaction
- Advanced Mobile User Interfaces
- Deep Learning in Computer Vision

Awards/Scholarships

- Addictive Mobility Scholarship in Applied Computing *November 2016*
- Mitacs Accelerate Scholarship - 2x Terms *April 2017 — December 2017*

B.Tech. Computer Sciences and Engineering - Maharshi Dayanand University. *August 2008 — May 2012*

- Data Structures and Algorithms
- Web Development
- Intelligent Systems
- Digital Electronics
- Digital and Analog Communications
- Compiler Design

WORK EXPERIENCE AND PROJECTS

Applied Computer Vision and Deep Learning Research at *Nureva Inc., Calgary, Alberta, Canada* *May 2017 — Present*

- **Software Developer (Product Development):** *April 2018 — Present*
  After successful delivery of my applied research project, I switched roles and transitioned to a full-time software developer for the PD team. I am leveraging learnings from my past, when I was an expert on web technologies to enhance Nureva's current offerings. In near future, I intend to incorporate probabilistic models to improve current state-of-the art collaboration products to make the even smarter, intuitive and ai-driven.
- **Software Developer (Research):** *Jan 2018 — April 2018*
  Working on the extension of my internship project, exploring further possibilities in the same domain.
  ○ Improved model inferencing performance by 160x. Allowing real-time processing of multiple videos.
  ○ Implemented real-time heuristical camera switching pipeline.
  Skills Used: Python, C++, CUDA, NumPy, OpenCV, DLib, Tensorflow, Bash
- **Technical Internship (Master's Requirement):** *May 2017 — December 2017*
  Worked under supervision of *Mr. David Popovich (Nureva Inc.)* and *Prof. Sanja Fidler (UofT)* researching on deep learning based contextual real-time camera switching techniques.
  ○ Equipped a model conference room to simulate meeting scenarios and generate custom data sets.
  ○ Built a testing apparatus for recording, storing, processing and streaming multiple-streams of Full HD videos.
  ○ Applied state of the art deep learning techniques to implement head-pose estimation, gaze/attention detection models and perform activity recognition.
  ○ Contributed to the OpenCV project to improve CUDA integration.
  Skills Used: Python, C++, CUDA, Numpy, OpenCV, DLib, Tensorflow, Bash

Teaching Assistant (2x Terms) at *University of Toronto, Toronto, Ontario, Canada.* *September 2016 — April 2016*
Worked with *Prof. Karen Reid* and *Prof. Amir Chinaei* for *CSC309 - Programming on The Web* course.

- **Lab/Assignment Designing, Testing and automation:**
  - Built an Instagram Proxy API for students to help them learn node and REST api concepts.
  - Enforced students to be accustomed to latest industry standards and relevant style guides.
  - Conducted live coding sessions for the entire term and helped students with their projects during lab hours.

  Skills Used: Python, Bash, Node, GitHub, JS.

Software Engineering Consultant at *Google, Gurgaon, Haryana, India*. *August 6, 2012 — August 5, 2016*
Worked with gTech engineering via globallogic and undertook multiple roles:

- **Tools Specialist - gTech Engineering Devshop** *Jan 2015 — Aug 2016*
  - Managed and maintained two internal business intelligence tools used by the AdSales Team.

  Skills Used: Python, AngularJS, Backbone.js, Blaze Build system, Google AppEngine.
- **Crawling Subject Matter Expert - Gmail Intelligence - Google Now** *July 2014 — December 2014*
  - Worked on intelligent parser backend which provides vital actionable information for multiple google projects like google now, gmail cards, etc.

  Skills Used: Crawzall (Internal Crawling Infrastructure), JS, Python.
- **Deep Link Crawling Expert - Google Flights Data Quality** *August 2013 - June 2014*
  - Contributed to JS/Webkit based deep-link crawling mechanism to analyse airline prices.

  Skills Used: JS, C++, Crawzall (internal Crawling Infrastructure).
- **Real Time Resource Analytics and Reporting** *August 2012 - July 2013*
  - Built a chrome extension based tracking tool for 3rd party contributors on the Freebase project.

  Skills Used: PHP, JS, Chrome Extensions, MySQL, Apache, Google APIs.

PERSONAL PROJECTS

- **Instagram Proxy API:** CORS compliant ReSTful API for Instagram's public Data. Appeared on Github Trending.
  Skills Used: Node, Heroku, APIs.
- **Arduino Based Hexa-Rotor Helicopter:** Based on *Ardupilot Mega* platform, payload capacity: 4kgs
  - Involved my aeronautical engineer friend, to understand avionics.
  - Controlled using telemetry device attached to an android phone.

  Skills Used: Arduino, Complex Electronic Circuits, Avionics, Power Distribution, Android, Python.

MASTERS PROJECTS

- **Transfer Learning based image recognition:** As a part of course project, built a transfer learning based Image classifier and scored a top ten rank among more than two hundred students.
  Skills Used: Python, TensorFlow, Inception
- **Using Fingerprint Reader as touchpad — UX Study:** Conducted a user study to understand back of the device interaction by converting the fingerprint reader on the rear side of the phone into a touchpad.
  Skills Used: Android, Java, HCI research techniques.
- **Recognizing Texts in the wild:** This was my deep learning project, where I built a model for classification and segmentation of the text appearing in the images in the wild.
  Skills Used: Python, Keras, TensorFlow.

BACHELORS PROJECTS

- **WiFi and Arduino Based Surveillance Robot:** based on recycled RC car platform.
  - Soldered all circuits from scratch. Made all mounts and holders from recycled materials.
  - Used a wifi router as a hotspot, Arduino chip with wifi shield as controller. IP Camera to provide video feed.
  - Built a very high power H-Bridge motor driver using mechanical relays.

  Skills Used: Radio Transmission Techniques, Arduino programming and Hardware, Tools, MCU.
- **Hexapod Bot and Line Follower Bot:** These two bots were made in workshops, earning a first prize, successfully executed all the stances of a Hexapod and functions of Line Follower and edge detector
  Skills Used: Arduino programming and Knowledge about Hardware, Tools, Design and MCU.