

# Fabrice Harel-Canada

SOFTWARE ENGINEER · COMPUTER SCIENCE RESEARCHER

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## Biography

Fabrice Harel-Canada is a computer science PhD student at UCLA where he is advised by Miryung Kim and is a member of both the Software Evolution and Analysis Lab and the Statistical Machine Learning Lab. His research aims at developing new techniques for training and testing ML systems. Most recently, this entailed devising novel adversarial attack regularizations and investigating test metrics for deep learning models with respect to defect detection, input naturalness, and output diversity.

## Education

### University of California, Los Angeles (UCLA)

Advisor: Miryung Kim

PHD | COMPUTER SCIENCE

Jan 2020 - Jun 2023

- 3.92 / 4.00 GPA
- Majors: Software Engineering + Artificial Intelligence
- Minor: Data Science Computing

### University of California, Los Angeles (UCLA)

Advisor: Miryung Kim

MS | COMPUTER SCIENCE

Sept 2018 - Dec 2019

- Major: Artificial Intelligence
- Thesis: *Is Neuron Coverage a Meaningful Measure for Testing Deep Neural Networks?*

### University of Florida (UF)

BS | BUSINESS ADMINISTRATION

Aug 2008 - May 2012

- Majors: Management + Information Systems and Operations Management
- Minors: Entrepreneurship + Finance
- Thesis: *The Viability of the Student-Run Housing Cooperative: A Case Study of the Cooperative Living Organization*

## Publications

IS NEURON COVERAGE A MEANINGFUL MEASURE FOR TESTING DEEP NEURAL NETWORKS?

ESEC/FSE 2020

**Fabrice Harel-Canada**, Lingxiao Wang, Muhammad Ali Gulzar, Quanquan Gu and Miryung Kim, in *Proc of ACM SIGSOFT International Symposium on the Foundations of Software Engineering (ESEC/FSE)*, Sacramento, California, USA, 2020.

Acceptance Rate: 28 %

## Research Experience

### University of California, Los Angeles

Supervisor: Judson Caskey

RESEARCH ASSISTANT

July 2020 - present

- Conducted LDA topic modeling and sentence clause-level sentiment analysis using BERT transformers on millions of Amazon and Glassdoor product / employer reviews

### University of California, Los Angeles

Supervisor: Miryung Kim

GRADUATE STUDENT RESEARCHER

June 2019 - present

- Evaluated the reliability of testing metrics for deep learning
- Developed extensions to adversarial attack algorithms

## Professional Experience

### Axenzi Consultants

CEO

Oct 2018 - present

- Helping clients to plan and implement technology projects - specs, devops, application development, and database development

### University of California, Los Angeles

Supervisor: Carlo Zaniolo

READER, CS 143 : DATABASE SYSTEMS

Jan 2019 - Mar 2019

- Developed test cases for a Spark project in Scala, actively addressed student questions, and assisted students with project work

## Verox Tech

Supervisor: Michael Simhai

PROJECT MANAGER + DEVELOPER TEAM LEAD

July 2015 – Sept 2018

- Designed and successfully launched a smarter insurance app by building, motivating, and guiding a team of 23
- Contributed 100s of check-ins, primarily consisting of C# Web APIs and database tables, triggers, sprocs, and T-SQL scripts
- Designed and implemented a 3-system legacy data migration
- Responsible for producing, coordinating and reviewing nearly every aspect of the SDLC:
  - code reviews and code optimization
  - requirements and spec generation
  - database design + SSIS + SSRS
  - technical documentation
  - UI design standards + product design
  - build and deployment scripts

## People's Trust Insurance

Supervisor: Scott Thompson

BUSINESS + DATA ANALYST

Dec 2012 – Sept 2018

- Go-to data expert for executives to produce hundreds of reports and analyses for pivotal decision making at the executive level
- Developed numerous front-end / back-end application features that were successfully deployed into production to automate tedious and time-intensive workflows
- Performed continuous requirements gathering & demos with business stakeholders to support 60+ sprints of development for both applications and business intelligence teams, including the transition to a new policy and claim management system

## Cooperative Living Organization

PRESIDENT

Dec 2010 – May 2012

- Appointed and oversaw the performance of 17 managers who were responsible for executing the policies and procedures I developed
- Increased house occupancy from 60 residents to full capacity (80) and increased net income 57% while expanding services & activities for residents

## Skills

<b>Programming</b>	sql, python, java, c#, linq, html, css, js, scala, prolog, prolog, $\LaTeX$
<b>Frameworks</b>	pytorch, tensorflow, keras, spark, numpy, pandas, scipy, sklearn, opencv, matplotlib, seaborn
<b>Tools</b>	ssms, ssis, ssrs, tfs, azure devops, visual studio, excel, aws, gcp, exchange server, moqups

## Selected Coursework

2020	<b>Reinforcement Learning</b> , EC 239AS	UCLA
2020	<b>Machine Learning Algorithms</b> , CS 260	UCLA
2020	<b>Probabilistic Programming</b> , CS 267A	UCLA
2019	<b>Neural Networks and Deep Learning</b> , EC 239AS	UCLA
2019	<b>Natural Language Processing</b> , CS 269	UCLA
2019	<b>ML Testing and Debugging</b> , CS 239	UCLA
2018	<b>Advanced Data + Knowledge Bases</b> , CS 240B	UCLA

## Honors & Awards

2019	<b>Magna Cum Laude</b> , 3.90 / 4.00 GPA	UCLA
2012	<b>Magna Cum Laude</b> , 3.85 / 4.00 GPA	University of Florida
2008 - 2012	<b>Recipient</b> , Bright Futures Academic Scholarship	University of Florida
2011 - 2012	<b>Recipient</b> , Anderson Scholar with Distinction	University of Florida

## Extracurricular Activity

2019	<b>Volunteer</b> , TreePeople	Los Angeles, CA
2018	<b>Volunteer</b> , Gay for Good (G4G)	Los Angeles, CA
2017	<b>Volunteer</b> , Los Angeles LGBT Center	Los Angeles, CA
2014	<b>Volunteer</b> , Stonewall Pride	Wilton Manors, FL
2009	<b>Volunteer Counselor</b> , CDS Interfaith Youth Shelter	Gainesville, FL
2009	<b>Co-founder, Editor, Contributor</b> , Florida Inquiry Journal	Gainesville, FL
2009 - 2010	<b>Volunteer</b> , Habitat for Humanity	Fort Lauderdale, FL
2008 - 2012	<b>Member</b> , UF Entrepreneurship Club	Gainesville, FL