

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 AI systems. Most recently, this entails unifying and expanding data augmentation and metamorphic testing techniques into a broader framework of class invariant, sibylvariant, and mixture transformations.

Education

University of California, Los Angeles (UCLA)

PHD | COMPUTER SCIENCE

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

Advisor: Miryung Kim

Jan 2020 - Jun 2023

University of California, Los Angeles (UCLA)

MS | COMPUTER SCIENCE

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

Advisor: Miryung Kim

Sept 2018 - Dec 2019

University of Florida (UF)

BS | BUSINESS ADMINISTRATION

- 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*

Aug 2008 - May 2012

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

RESEARCH ASSISTANT

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

Supervisor: Judson Caskey

July 2020 - present

University of California, Los Angeles

GRADUATE STUDENT RESEARCHER

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

Supervisor: Miryung Kim

June 2019 - present

Professional Experience

Axenzi Consultants

CEO

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

Oct 2018 - present

University of California, Los Angeles

READER, CS 143 : DATABASE SYSTEMS

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

Supervisor: Carlo Zaniolo

Jan 2019 - Mar 2019

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
 - server setup / config
 - 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

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

Selected Coursework

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

Honors & Awards

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

Extracurricular Activity

UF Entrepreneurship Club

University of Florida

MEMBER

Aug 2008 - May 2012

Florida Inquiry Journal

University of Florida

COFOUNDER, EDITOR, CONTRIBUTOR

Jan 2009 - Dec 2009