Daniel **Padé**

COMPUTER SCIENTIST · ENGINEER · MATHEMATICIAN

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Education

University of South Carolina	Columbia, SC
PH.D. IN COMPUTER SCIENCE & ENGINEERING	Aug 2013 – Dec 2019
The Data Incubator	New York, NY
DATA SCIENCE FELLOWSHIP	Jul 2019 – Sep 2019
Boston University	Boston, MA
BA – MAJORING IN PHYSICS	Aug 2007 - Jun 2011

Skills

Programming	Python (pandas, numpy, scikit), Spark(SQL), TensorFlow, Java, Scala, C, Haskell, Git, LaTeX, SQL, HTML/CSS
Mathematics	Complexity Theory, Statistics, Universal Algebra, Algorithmic Design and Correctness
Research	Quantum Optics, Semiconductors, Experimental Design
Specialties	Physics of Computation, Quantum Computation, Computational Complexity, Type Theory, Computational Physics

Experience

The Data Incubator — New York, NY

FELLOW — Jun 2019 – Aug 2019

Analyzed a subset of the Twitter user graph (≈ 4 mil users) to determine influential users by speech content.

University of South Carolina — Columbia, SC

RESEARCH ASSISTANT — Aug 2013 – Dec 2019

Research in Computer Science/Mathematics. Specializing in Quantum Computation, Quantum Algorithms Circuit Theory, Learning Machines, and Computational Complexity.

University of South Carolina — Columbia, SC

RESEARCH ASSISTANT — Aug 2014 – Jun 2017

Research in Semiconductors and Quantum Optics. Created FDTD simulations for quantum dot and second harmonic generation experiments. Analyzed over 1GB of data to predict electromagnetic radiation within quantum dots. Led group of 3 undergraduates in building and testing electrospinning apparatus.

Boston University — Boston, MA

LEAD SIMULATION DEVELOPER/RESEARCH ASSISTANT — Jan 2011 - Jun 2012

Dark Matter and Neutron Time Projection Chamber Research Associate specializing in the simulation of a TPC dark matter experiment through the use of SRIM and Geant4. Simulated and analyzed over 1GB of data to predict particle collisions.

ANDCorp — Boston, MA (remote)

LEAD SIMULATION DEVELOPER — Jun 2012 – Aug 2013

Fast Neutron Detector Worked in collaboration with MIT to provide an alternative fast-neutron detector to aid in the detection of nuclear materials. Primarily used MCNP/X and Geant4 toolkits in digitizing the detector physics. Simulated and analyzed over 1GB of data in to verify detector response to particle collisions.

Teaching

University of South Carolina — Columbia, SC

INTRODUCTION TO ALGORITHMIC DESIGN I — Aug 2014 – May 2016

Introduction to programming in Java. Fundamentals of programming, as well as proper software design, recursion, and an introduction to analysis of algorithms.

University of South Carolina — Columbia, SC

INTRODUCTION TO ALGORITHMIC DESIGN II — Aug 2015 – Dec 2015

Introduction to data structures and algorithm analysis. Topics included linked lists, array lists, sorting analysis, binary trees, and AVL trees.

University of South Carolina   Columbia, SC

INTRODUCTION TO COMPUTER ARCHITECTURE   Jan 2018 – Aug 2018

Low level programming and hardware design. Topics included MIPS assembly, programming in C, memory management, CPU design, pipelining, and introduction to parallelism.

University of South Carolina   Columbia, SC

UNIX/LINUX FUNDAMENTALS   Jun 2016 – Aug 2016

Introduction to working in a Unix environment. Topics included unix editors (ed/vi/emacs), shell scripting, regular expressions, text processing (sed/awk/grep), and an introduction to GNU make.

University of South Carolina   Columbia, SC

FUNDAMENTALS OF COMPUTATION   Aug 2016 – May 2017

Undergraduate theory of computation. This course was an introduction to proof-based reasoning, and covered the standard undergraduate automata theory and decision problems.

University of South Carolina   Columbia, SC

PROFESSIONAL ISSUES IN COMPUTER SCIENCE   Jan 2017 – May 2017

Business applications and ethics of computer science. Topics included legal milestones in the history of computer science, stakeholder analysis, and basic ethical philosophy.

Honors & Awards

2007	**Semifinalist**, AAPT Physics Olympiad	National
2014	1st **place**, Boeing Hackathon	Columbia, SC
2015	**Outstanding Graduate Instructor**, USC Graduate School	Columbia, SC
2015	2nd **place**, Gamecock Computing Symposium	Columbia, SC

Presentation

University of South Carolina ACM Chapter   Columbia, SC

ACM PRESENTER (RECURRING)   Aug 2013 – May 2017

Presented on various topics including Functional Programming, programming language design, history of computer science, machine learning, and pursuing a career in computer science.

Annual Gamecock Symposium   Columbia, SC

POSTER SESSION   Oct 2015

Classifying Pisot-Vijayaraghavan numbers of degree 4

Discrete Mathematics Seminar   Columbia, SC

INVITED CONTRIBUTER   Jan 2019

Analysis of regex crossword puzzles

LATA 2019   St. Petersburg, Russia

PEER REVIEWED CONTRIBUTER   Mar 2019

Complexity of regex crossword games

SEC 2019   Tuscaloosa, AL

POSTER SESSION   Sep 2019

Computing parity in constant depth quantum circuits

Writing

Depth-2 QAC circuits cannot simulate quantum parity   TQC Pending

STEPHEN FENNER, DANIEL GRIER, **DANIEL PADÉ**, THOMAS THIERAUF   2020

Complexity of Regex Crosswords   LATA Proceedings

STEPHEN FENNER AND **DANIEL PADÉ**   2019

Glass panel ^{6}Li Neutron Detector IEEE HST

Inglis, A., Rosenfeld, E., Yellen, M., **Pade, D.**, Damask, S., Hazen, E., Ahlen, S., Tomita, H., & Hartwig, Z. 2012

Program Committees

2014–2016 **Organizer & Problem Writer**, USC Hackathon (Semiannual) Columbia, SC