

DANIEL ESTEVAN MCANDREW

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EDUCATION

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|---|-------------|
| Master of Information Management and Systems - GPA: 3.8 | <i>2021</i> |
| University of California, Berkeley | |
| Focus: Machine Learning, Data Science | |
| B.S. in Astrophysics with Minor in Computer Science - GPA: 3.3 | <i>2017</i> |
| California Institute of Technology | |

WORK AND RESEARCH EXPERIENCE

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| Akamai Technologies | <i>Summer 2020 (current)</i> |
| Machine Learning Engineer Intern | |
| <ul style="list-style-type: none">• Mining data and developing statistical models for detecting and classifying malicious web traffic.• Extending Akamai's Bot Manager to handle Open Financial Exchange (OFX) requests. | |
| Intel Corporation – True View | <i>Aug 2017 - Aug 2019</i> |
| Software Engineer (System Integration and Image Processing) | |
| <ul style="list-style-type: none">• Wrote and maintained computer vision programs and pipelines for volumetric video and graphics software used to produce content for live television broadcasts.• Ensured site reliability for Intel Sports sites around the globe.• Performed real-time debugging of software issues during live broadcast events. | |
| NASA Jet Propulsion Laboratory | <i>Summer 2016</i> |
| Research Assistant and Scientific Programmer | |
| Advisor: Raghvendra Sahai | |
| <ul style="list-style-type: none">• Wrote scripts to run, analyze, and visualize radiative transfer Monte Carlo simulations.• Simulated the physics and chemistry of celestial objects related to extrasolar planetary system formation.• Reduced multi-wavelength telescope data to create publishable images and compare with simulations. | |
| Caltech Department of Physics, Math, and Astronomy | <i>Spring 2016</i> |
| Teaching Assistant | |
| <ul style="list-style-type: none">• TA for intro astrophysics class titled "The Evolving Universe".• Gave weekly review lectures and notes, held office hours, assigned and graded assignments. | |
| Caltech and NASA Infrared Processing and Analysis Center | <i>Summer 2015</i> |
| Research Assistant and Scientific Programmer | |
| Advisors: Daniel Masters and Peter Capak | |
| <ul style="list-style-type: none">• Used C to implement a neural network, the Self Organizing Map (SOM).• Used SOM to characterize galaxy distribution in color space to help efficiently estimate galaxy distances.• Performed analysis, dimensionality reduction, and visualization of large and high-dimensional data sets. | |
| Carnegie Observatories | <i>Summer 2014</i> |
| Research Assistant and Scientific Programmer | |
| Advisor: Andrew Benson | |
| <ul style="list-style-type: none">• Used modern Fortran to implement a model of the evolution of the intergalactic medium's temperature and ionization state by modeling atomic and radiative physics.• Contributed code to existing galaxy evolution software, Galacticus:
https://bitbucket.org/galacticusdev/galacticus/wiki/Home• Modeled Reionization of the Universe to test dark matter particle models. | |

ONGOING RESEARCH PROJECTS

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| ScholarPhi | <i>2020</i> |
| Advisor: Marti Hearst | |
| <ul style="list-style-type: none">• Using data mining and machine learning models to contribute to development of an interactive PDF reader for academic papers: https://github.com/allenai/scholar-reader. | |

LEADERSHIP ROLES

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| Lead System Engineer for US Open Tennis Championships | <i>2018</i> |
| <ul style="list-style-type: none">• Led the development of the Intel True View software version for the 2018 US Open.• Attended the US Open to provide on-site support for the event's broadcast. | |

ADDITIONAL SKILLS AND COURSEWORK

Programming Languages

Experienced: Python (Numpy, Pandas, Matplotlib, OpenCV, QT, TensorFlow, Keras, PyTorch).
Proficient: SQL/MySQL, C, C++, Bash scripting, Batch scripting.

Some experience: Fortran, Mathematica, Matlab, Javascript.

Operating Systems

Windows, Mac, Linux (primarily Ubuntu along with some other distributions).

Markup Languages

LaTeX, HTML, XML, JSON.

Version Control

Git and Mercurial.

Computer Science

Computing Systems, Decidability and Tractability, Data Structures and Algorithms

Graphics and Geometry, Computer Vision, Machine Learning, Deep Neural Networks, Artificial Intelligence.

Data Analysis

Data Mining and Analytics, Numerical Simulations, Data Visualizations, Image Processing,

Natural Language Processing, Bayesian Analysis, Information Organization and Retrieval

Technical Social Science

Research and Design Methods for Analysis, Cybersecurity Consulting Clinic,

Information Law and Policy, Social Issues of Information.

Math

Calculus, Vector Calculus, Linear Algebra, Statistics and Probability,

Ordinary and Partial Differential Equations, Graph Theory, Complex Analysis.

Physics

Electromagnetism, Special Relativity, Analog Electronics, Waves and Optics, Quantum Mechanics,

Statistical and Thermal Physics, Lagrangian/Hamiltonian Mechanics, Computational Physics.

Astronomy

Celestial Mechanics, Radiative Transfer, Galaxies and Cosmology, Interstellar and

Intergalactic Mediums, Stellar Physics, Extrasolar Planetary Systems, Instrumentation.

Scientific Communication

Wrote proposals and results reports and presented talks for the following projects:

“Understanding the Physical and Chemical Conditions in Free-floating Evaporating Gaseous Globules to Probe the Star-Formation Process in Irradiated Environments”

“Using The Self Organizing Map Algorithm To Determine Redshifts and Characterize the Galaxy Population”

“Modeling the Reionization of the Universe to Constrain the Nature of Dark Matter”

Languages

Intermediate Spanish (speaking, reading, and writing).