SURYA DUTTA

NUCLEAR PHYSICIST

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EDUCATION

YALE UNIVERSITY

B.S. in Physics *(Intensive),* 2018
GPA: 3.76/4.00
GPA (*Physics Only*): 3.76/4.00
Relevant Coursework:

- Advanced Physics Laboratory
- Classical Mechanics
- Quantum Mechanics (I and II)
- Electromagnetic Fields and Optics
- Thermodynamics and Statistical Mechanics *(in progress)*
- Data Mining and Machine Learning *(in progress)*

SKILLS

PROGRAMMING: Python, Jupyter, Unix, SQL, Full Stack Javascript

RESEARCH: Data Analysis, Monte Carlo Simulations, Mathematical Modeling, Machine Learning / AI

INTERESTS: Intermediate Ballroom Dancer, Competitive Chess Player, Participate in National Hackathons

AWARDS

Mar 2016	**Alan S. Tetelman Research Fellowship**
	Awarded for international research in the sciences
Apr 2015	**George J Schultz Research Fellowship**
	Awarded for summer research in the physical sciences
Aug 2014	**Likely Letter Recipient**
	Awarded to select **top** applicants to Yale College

RESEARCH

THE CRYOGENIC UNDERGROUND OBSERVATORY FOR RARE EVENTS (CUORE) EXPERIMENT

Research Assistant, Maruyama Lab Feb 2016 - Present
Yale University, New Haven, CT

- Experimental Physics Research Assistant with CUORE, a large multinational collaboration building a three-story underground detector in **central Italy** for detecting extremely rare nuclear physics events
- Developed **algorithms, Monte Carlo simulations, and mathematical models** to identify radioactive contamination in detector and **improve signal-to-noise resolution by 19% (Summer 2017)**
- Conducted critical tasks **on-site**, including calibration hardware installation and diagnosis of cryogenic systems. Set up **secure network infrastructure used by 74 scientists** to monitor cryostat (**Summer 2016**)

THE MCKINSEY RESEARCH GROUP

Research Assistant Mar 2015 - Aug 2015
Berkeley Lawrence National Laboratory, Berkeley, CA

- Conducted **independent study** to test viability of superfluid liquid helium as an efficient medium for low-energy **dark matter** detection
- Used **Markov-Chain Monte Carlo** simulations to simulate **3 million particles** - independently developed dark matter physics packages in **Python**
- Initial results showed to have significant discrimination ability and resolution - may help develop third-generation of direct dark matter detectors

LEADERSHIP

YALE SCHOOL OF MANAGEMENT

Teaching Assistant Sept 2017 - Present
Yale University, New Haven, CT

- TA for **MGT 660: Advanced Management of Software Development**
- Specialize in agile project management, Javascript web stacks, and best practices for software enterprises and large technology firms
- Manage and assist **26 MBA candidates** in class and during office hours

YALE UNDERGRADUATE RESEARCH ASSOCIATION

Founder and President Jan 2015 - May 2017
New Haven, CT

- Founded **501(c)(3) non-profit** to support Yale undergraduate researchers
- Grew community to **900+ members and 100+ active participants in 1 year**
- **Led 20 Executive Board members** to organize initiatives across campus
- Fundraised **$25,000** to organize the first intercollegiate undergraduate **research conference** at Yale (Spring 2017), with **70 interdisciplinary** presenters from **29 different universities.**
- Initiated and developed **database of Yale research labs**, including **1400+ listings** from 60+ departments, used by **1200+ Yale students in a 5 month period, growing user base with 60% rate of return.**