

# Oscar Depp

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## EDUCATION

### Northwestern University

*Bachelor of Science in Applied Mathematics*

*Master of Science in Electrical Engineering*

- GPA: 3.97/4.00; Dean's List All Quarters

- Activities: Northwestern Capital Management, AeroNU, Experimental Space Technology, Club Tennis (A Team), Japan Club (VP)

- SAT: 1510 (Verbal: 730, Math: 780)

**King's Academy** (*Study Abroad*)

**Evanston, IL**

*Expected June 2025*

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**Madaba, Jordan**

## EXPERIENCE

### Northwestern Capital Management

*Quantitative Strategy Analyst*

- Developed a buy/sell signal generation model using LSTM model predictions of preprocessed closing price data
- Produced a pairs trading algorithm capitalizing on positively correlated stock spread, selecting highest correlated stocks as pairs
- Built a tweet sentiment analysis model determining tone of parsed stock news to pick and assess stock position, providing systematic, holistic insights into trading decisions
- Assessed return of given models' portfolios with Sharpe & Sortino Ratios, Max Drawdown, and a PnL chart, categorically testing automated investment models' robustness and performance

**Evanston, IL**

*March 2023-*

### Buffett Institute of Global Affairs

*Undergraduate Researcher*

- Analyzed gender representation in 2000 Arabic textbook images with pre-trained classifiers, identifying themes detrimental to DEI
- Quantified implicit bias in core class material comparing gendered word frequency & positioning plots in four 500-page textbooks
- Introduced equitable curriculum initiatives addressing weak teaching methods & macro gender trends in Middle East STEM datasets
- Arranged 50+ attending DEI keynote speaker events and Arabic music performances for local & academic communities

**Evanston, IL**

*September 2022-January 2023*

### YGC Group & Triple Alpha Inc.

*Summer Intern*

- Created promotional videos on Adobe to market Japan's Boarding School Fair promoting interest in diverse opportunities abroad
- Composed a website column using translation tools for interviews with Japan's global leaders in VC, entertainment, & education
- Provided one-on-one mentoring and SAT, TOEFL, and interview support for middle and high school students
- Consulted on strategy exploring international market with CEO, establishing cross-divisional team for global education

**Tokyo, Japan**

*June-August 2021*

## PROJECTS

### Funded Undergraduate Research

- Awarded a \$4500 summer research grant for a self-directed proposal exploring electro hydrodynamics modeled by Stoke's equation
- Investigated active matter mechanisms behind swarm intelligence, self-organization, and evolution of interest rates
- Applied fast multipole method, Green's functions, asymptotic analysis, and fluids theory to simulate particle interactions in MATLAB, improving application's current simulation method
- Animated computed streamlines to visualize 2-D, 3-D particle behavior; presented results to mentor weekly and PI monthly

*May-August 2023*

### Autonomous Drone Project | Robotics Club

- Trained a computer vision model to identify boxes with 85% accuracy, wrote a PID loop program to adjust positions autonomously
- Designed and 3-D printed drone's electronics frame, aiming to offer more efficient solutions for supply chain

*November 2022-*

### CubeSat Design | Experimental Space Technology

- Developed a novel Additive-Manufactured satellite design minimizing part count, weight, and debris impact in atmosphere
- Researched 3D-cellular structures, selected materials computationally, & optimized topology through Python simulation

*March-September 2022*

### Helix Slap-Down Container Opener | DTC I

- Created a human-centric, intuitive device assisting client with paraplegia open containers in collab. with Shirley Ryan Ability Lab
- Conducted user-interviews, performed testing with project partners, & met with design consultants to optimize design choices
- Iterated physical prototype incorporating user feedback; planned 10-week team structure with GANTT, RAM charts

*September-December 2021*

## SKILLS & INTERESTS

**Awards:** J.S. & Helen James Scholar, McCormick Summer Research Award 2023, Segal Institute Design Award 2021, Advanced Arabic Excellency Award 2022, Speech (Poetry Declamation) Award 2021

**Programming:** Numerical Modeling, PyTorch, TensorFlow, C++/C, Python, SQL, Git, R, MATLAB, Java, CAD, Mathematica

**Languages:** Fluent in English, Japanese, Chinese, Arabic

**Interests:** Tennis, Piano, Languages, Running, Travel, Writing Poetry & Film, Sauna, Beekeeping