

OLIVER BACCAY

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Education

Northeastern University

May 2028

B.S. Mathematics, Data Science Minor

GPA: 3.98/4.0

Relevant Coursework: Probability, Statistics, Stochastic Processes, Real Analysis, Foundations of Data Science, Calc I-III, Machine Learning, Linear Algebra, Differential Equations, Advanced Programming with Data, Data Visualization, Macroecon

Leadership/Involvement: Generate Product Development Studio (Data Scientist), The Actuarial Club (Active Member), Alternative Investments (Senior Researcher), Northeastern London STEM Society (Co-Founder & Secretary)

Actuarial Exams

Society of Actuaries (SOA): Exam P (Passed Jan 2026), Exam FM (Sitting June 2026)

Professional Experience

John Hancock

Boston, MA

Incoming Actuarial Co-op

Sept 2026 - Dec 2026

- Will support actuarial pricing, reserving, or experience analysis for life insurance products using Python, Excel, and SQL.

Travelers

Hartford, CT

Incoming Actuarial Intern (ALDP)

June 2026 - Aug 2026

- Will support catastrophe risk pricing and rating factor analysis within the Enterprise CAT actuarial & data science team.

Cortex

Boston, MA

Data Engineer

Jan 2026 - April 2026

- Built an internal AI knowledge graph tool in Python & Typescript using Docker, Git & Agile with team of 8 engineers.
- Developed a GraphRAG pipeline using Cogneer, KuzuDB, and pgvector to ingest PDFs and CSVs into a knowledge graph.
- Enabled 99% reduction in mechanical engineering design research time via NLP-powered semantic knowledge graph search.

Nicolaysen Insurance Agency

Chappaqua, NY

Property & Casualty Intern

July 2025 - Aug 2025

- Improved quoting efficiency by 66% by centralizing initial quotes, reducing required staffing needs while maintaining output.
- Generated 25+ personal line quotes by analyzing risk profiles and comparing carrier pricing, identifying cost-saving options.
- Analyzed 200+ client policy records in Excel, identifying data discrepancies across policy changes to ensure data integrity.

Sarah Lawrence College

Bronxville, NY

Physics Research Intern (Nuclear Magnetic Resonance, NMR)

May 2024 - Aug 2024

- Conducted T1 and T2/T2* relaxation experiments using benchtop NMR to collect Magnetic Resonance signal datasets.
- Analyzed complex signal data using Fourier transforms in Excel, creating detailed visualizations for research documentation.
- Applied quantum mechanical principles to analyze complex signal transformations across frequency and time domains.

Relevant Projects

Life Insurance Premium Calculator | *Python, Shiny, NumPy*

- Developed an interactive Python Shiny app to estimate life insurance premiums by modeling core mortality probabilities.
- Applied demographic risk factors and a cost loading to mortality estimates to accurately calculate death benefit premiums.
- Implemented a dynamic user interface that enables real-time premium updates, simulating practical actuarial pricing tools.

Natural Language Processing for Insurance Litigation | *Python, Pandas, Plotly, Matplotlib*

- Built a text analysis framework to process 8 insurance litigation cases from appellate courts using NLP parsing algorithms.
- Implemented TF-IDF scoring to extract key risk indicators and identify liability patterns across major insurers' documents.
- Developed Sankey diagrams and Matplotlib visualizations to quantify term importance for overall claims exposure analysis.

Skills and Interests

Technologies: Python, Excel, SQL, Microsoft Office Suite, HTML/CSS, PowerBI

Tools/Libraries: Git, Docker, Pandas, NumPy, Statsmodels, SciPy, Scikit-Learn, Plotly, Seaborn, NLTK, HoloViz

Interests: Electric Guitar, 90's Rock, Bouldering, Audio Engineering, Premier League, Digital Cameras