Professional Resume

M. O.

As of June 2025

Work Summary

Period	Role / Responsibility
Apr 2014 – Mar 2015	Researcher, Institute for Solid State Physics (ISSP), The University of Tokyo (LASOR Center)
Apr 2015 – Mar 2018	JSPS Research Fellow (DC1), The University of Tokyo
Apr 2018 – May 2019	Middle Office Quant System Developer, Consulting Firm
Jun 2019 – Feb 2024	Equity Derivatives Quant, Major Securities Firm
Mar 2024 – Present	eFX (Electronic Foreign Exchange) Quant Manager, Megabank
Jun 2022 – Present	Quant Marketing Lab, Founder (Sole Proprietor) (Overseeing DX & Marketing Infrastructure Development for Recruiting Tech)

Technical Summary

- **Programming Languages:** Python (Pandas, NumPy, scikit-learn), Java, SQL, VBA, shell script
- **Platforms & Tools:** Tableau, Looker Studio, Git, JIRA, Docker
- **Cloud:** AWS (EC2, Lambda, Batch, S3), Google API (Gmail, Calendar, Gemini API), OpenAI API
- **Databases:** Microsoft SQL Server, PostgreSQL, kdb+ q Database
- **Financial Engineering & ML:** Monte Carlo Simulation, Black-Scholes Model (and derivatives), SVM, Clustering Analysis

Work Details

Apr 2014 – Mar 2015: Researcher, Institute for Solid State Physics (ISSP), The University of Tokyo (LASOR Center)

Organization Overview: The Laser and Synchrotron Research (LASOR) Center develops extreme lasers, such as ultra-precision lasers, ultra-short pulse lasers, and high-intensity lasers. Using these extreme light sources spanning a wide energy range from terahertz to vacuum ultraviolet (VUV) and soft X-rays, the center develops new, cutting-edge spectroscopic measurements. These include ultra-high-resolution photoemission spectroscopy, time-resolved spectroscopy, spin-polarized spectroscopy, microspectroscopy, diffraction/light scattering, imaging, and luminescence spectroscopy. These advanced

light sources and spectroscopic methods are applied to a wide range of materials science research (semiconductors, strongly correlated materials, organic materials, surfaces, interfaces) and are available for collaborative use.

Responsibilities: Conducted femtosecond time-resolved and angle-resolved photoemission spectroscopy (ARPES) experiments using high-intensity lasers and VUV/soft X-ray extreme coherent light sources. Validated experimental results through numerical simulations based on quantum field theory.

Achievements: Published in peer-reviewed journals and presented at peer-reviewed international conferences.

Period	Project Details
Apr 2014 – Mar 2015	• **Researcher, Institute for Solid State Physics (ISSP), The University of Tokyo** **Responsibilities:** Validation of experimental results via numerical simulation. New development of experimental equipment for ultra-high vacuum and extreme coherent light. Presented theoretical physics research from Master's program at a peer-reviewed international conference. Authored a peer-reviewed paper. **Key Achievements:** • Presentation at JPS 69th Annual Meeting: "Analysis of Magnetic Field-Angle Dependent Electronic Raman Scattering to Probe the Superconducting Gap" 30aCA-8 (2014) • Peer-reviewed international conference (SCES): "Analysis of Magnetic Field-Angle Dependent Electronic Raman Scattering to Probe the Superconducting Gap" • (Preprint) "Enhancement and termination of the superconducting proximity effect due to atomic-scale defects visualized by scanning tunneling microscopy" (Supported experimental results by simulating the ordered state of the surface electron system at the superconductor/metal interface as an assistant to the experimentalist.) • Peer-reviewed journal publication (First Author): "Analysis of Magnetic Field-Angle Dependent Electronic Raman Scattering to Probe the Superconducting Gap" JPS Conf. Proc. 3, 015045 (2014). (`https://journals.jps.jp/doi/10.7566/JPSCP.3.015045`) (Applied quantum field theory to derive a new formula for Raman scattering response in anisotropic superconductors under a magnetic field. Based on the results, performed numerical simulations and proposed a new experimental method.)

Apr 2015 – Mar 2018: Researcher, The University of Tokyo (JSPS Research Fellow - DC1)

Overview: A program by the Japan Society for the Promotion of Science (JSPS) that provides outstanding young researchers with opportunities to focus on research based on their own free ideas at an early stage of their career, aiming to foster and secure researchers. Individuals enrolled in a doctoral course and aspiring to become researchers are accepted as "Research Fellow - DC1" and receive a fellowship for three years.

Achievements: Published 4 papers in peer-reviewed international journals.

Period	Project Details
Apr 2015 – Mar 2017	• **Suppression of supercollision carrier cooling in high mobility graphene on** SiC(0001) **Responsibilities:** Served as the lead experimentalist observing the non-equilibrium relaxation process of the 2D electron state in graphene deposited on a SiC(0001) thin film, using femtosecond time-resolved and angle-resolved photoemission spectroscopy. Also validated the model through theoretical calculations. **Achievement:** Peer-reviewed international journal publication [Phys. Rev. B 95, 165303(1-7) (2017). Editors' Suggestion] (`https://journals.aps.org/prb/abstract/10.1103/PhysRevB.95.165303`)
Apr 2015 – Apr 2017	• **Ultrafast Melting of Spin Density Wave Order in** $BaFe_2As_2$ **Observed by Time- and Angle-Resolved Photoemission Spectroscopy...** **Responsibilities:** Served as the lead experimentalist for the world's first observation of the spin density wave state in the iron-based superconductor $BaFe_2As_2$ using femtosecond time-resolved ARPES. Successfully observed the electronic state previously predicted by theory. **Achievement:** Peer-reviewed international journal publication [Phys. Rev. B 95, 165112(1-6) (2017)] (`https://journals.aps.org/prb/abstract/10.1103/PhysRevB.95.165112`)
Apr 2015 – Nov 2017	• **Femtosecond to picosecond transient effects in** WSe_2 **observed by pump-probe angle-resolved photoemission spectroscopy** **Responsibilities:** Succeeded in the world's first observation of the non-equilibrium relaxation process in the topological insulator WSe_2 using femtosecond time-resolved ARPES, confirming theoretical predictions of replica band structures. **Achievement:** Peer-reviewed international journal publication [Sci. Rep. 7, 15981(1-7) (2017)] (`https://www.nature.com/articles/s41598-017-16076-z`)
Apr 2015 – Mar 2018	• **Antiphase Fermi-surface modulations... in a parent compound of iron-based superconductors** **Responsibilities:** Served as the lead experimentalist to experimentally demonstrate a characteristic difference in the non-equilibrium relaxation process between the electron and hole surfaces at the Brillouin zone boundary of an iron-based superconductor. Validated experimental results with numerical simulations. **Achievement:** Peer-reviewed international journal publication [Phys. Rev. B 97, 121107(R)(1-6) (2018) Rapid Communication] (`https://journals.aps.org/prb/abstract/10.1103/PhysRevB.97.121107`)

Apr 2018 – May 2019: Consulting Firm

Company Overview: A firm providing consulting and system development services for financial institutions' front-office operations.

Department: Financial Frontier Division

Primary Duty: Response to International Financial Regulations (FRTB - Fundamental Review of the Trading Book)

Period	Project Details
Apr 2018 – Jul 2018	• **Training Period** Built a bond management system using Python, Java, shell script, and SQL.
Apr 2018 – Jul 2018	Attended UCLA as trainee representative: Completed Financial Engineering course (MBA) at UCLA (University of California, Los Angeles) under Francis A. Longstaff.
Aug 2018 – May 2019	• **New Implementation of FRTB Regulatory Compliance System at a Major Domestic Bank** **Responsibilities:** Developed system test tools (Java, VBA, Python, SQL, shell script). Validated system-to-system interfaces (Java, VBA, SQL, Javascript). Performed numerical validation (VBA, Python, SQL, shell script). Managed database definitions (VBA, SQL). **Achievements:** Executed over 130,000 test cases. Improved efficiency by creating test automation tools. Output was more than 10 times that of colleagues during the same period.

Jun 2019 – Feb 2024: Major Securities Firm

Department: Quant Department

Primary Duties: All operations related to Equity Derivatives.

Period	Project Details
Jun 2019 – Feb 2024	• **Equity Structured Products (EB/ELB) Trading Automation** **Responsibilities:** Automated structured product indications, cover trading, and official in-house booking. **Achievements:** Centralized and standardized indication request formats. Fully automated the workflow up to the cover trade request, eliminating trader intervention. (Fully automated the indication process, which previously took 5-10 minutes manually per trade, increasing the number of possible quotes by over 10x.)
Jun 2019 – Mar 2021	• **Total Return Rate of Swap (TRS) Transactions** Automated TRS transaction operations with banks. **Responsibilities:** Automated official in-house market value reports. **Achievements:** Automated tasks for the Middle Office Quant department and the Portfolio Trading section.
Jun 2019 – Feb 2024	• **Short Put Option (SPO) Transactions** **Responsibilities:** Created an official in-house trade management tool for exotic option transactions. **Achievements:** Enabled trading of schemes that were previously not possible, including Knock-Out/Knock-In Asian options and schemes with Knock-Out resets.
Mar 2020 – Mar 2021	• **COVID-19 Infection Rate Prediction and Analysis** Used machine learning (SVM) to predict infection rates, supporting quant analysts' stock price forecasting.
Oct 2020 – Jan 2021	• **LIBOR Transition**

Period	Project Details
	· Managed the roll-forward for existing exotic derivative contracts and simultaneously handled the system switch to register new contracts with the new RFRs.
Apr 2021 – Mar 2023	• **Product Development: Prepaid Variable Forward** Designed, implemented, and managed the trading of the product related to SoftBank Group's sale of Alibaba shares. **Achievements:** Successfully executed the sale of $7.2 billion worth of Alibaba shares for SoftBank Group. (`https://www.bloomberg.co.jp/news/articles/2023-04-12/RTOUTTDWRGG001`)

Mar 2024 – Present: Megabank

Department: FX Trading Department

Primary Duties: As the eFX Quant Team Manager, overseeing pricing operations for electronic foreign exchange (eFX) and supporting the sales team through marketing analysis.

Period	Project Details
Mar 2024 – Jun 2024	• **eTrading Operations Efficiency Improvement** **Responsibilities:** Clarified and organized routine, person-dependent tasks to reduce operational load. **Achievements:** Standardized and automated operations, enabling 24-hour desk coverage with 30% fewer personnel and allowing quants to participate in trading shifts.
Jun 2024 – Present	• **Spread Calibration** **Responsibilities:** Created and automated a batch process to analyze and determine appropriate market levels for FX rate bid/ask spreads. (Containerized with Docker and executed in a serverless environment using AWS Batch and Lambda.) **Achievements:** Completely automated a manual calibration process that previously took 1.5 hours daily, saving 30 hours per month. Improved pricing accuracy for both Tokyo and London markets through scheduled execution.
Jun 2024 – Present	• **Client Trend Analysis** **Responsibilities:** Responsible for creating and maintaining a Tableau dashboard as a support tool for the sales team. The dashboard uses clustering analysis to categorize client trends for analysis by trade volume, time zone, currency pairs, etc. **Achievements:** The dashboard is now frequently used in strategy meetings with traders and the sales team.
Mar 2024 – Present	• **Morning Meeting Report Automation** **Responsibilities:** Utilized OpenAI API to automate daily routine analysis and the creation of morning meeting presentation materials. **Achievements:** Eliminated 30 minutes of manual work (analysis & material creation) per day, achieving a monthly time saving of 15-20 hours.

Jun 2022 – Present: Quant Marketing Lab, Founder (Sole Proprietor)

Overview: Concurrently with the Megabank quant role and MBA studies, leading the DX and quantitative analysis infrastructure development for a recruiting agency as the Founder & Lead Developer of **Quant Marketing Lab**.
Responsibilities: Full ownership of quantitative analysis systems (planning, design, development, operation).

Period	Project Details
Jun 2022 – Present	• **Quantitative Analysis & Automation Platform for Recruiting Agency** **Responsibilities:** • **Quantitative Analysis & BI:** Real-time visualization of sales/progress (mirroring PORTERS SaaS DB (PostgreSQL), Google Spread Sheet, Looker Studio integration). Analysis of candidate withdrawal factors and proposing quantitative countermeasures. • **Business Automation:** Automated scout emailing (Google API). Automated morning meeting reports using Gemini API and OpenAI API. • **Infrastructure:** Built an automated Python analytics environment on AWS (Lambda, Batch). **Achievements:** • The system infrastructure directly contributed to the agency's rapid revenue growth (from 100M JPY to 3.6B JPY). • Achieved over 1000x operational efficiency in scout email automation. • Automated reporting eliminated 30 minutes of daily routine analysis, saving over 15 hours per month. • The highly productive, automated scout mail division was successfully spun off as a new, independent SES company.

Certifications & Qualifications

Date	Certification / License
May 2008	Driver's License
Apr 2010	Mathematics Certification (Grade 1)
Feb 2012	Heavy Motorcycle License
Jul 2015	National Civil Service Examination (Comprehensive Category), Passed (Registered on candidate list)
Jul 2016	Ibid. (Passed again, list updated)
Apr 2018	IT Passport (Acquired as part of new-hire training)
Apr 2018	TOEIC 765 (Acquired as part of new-hire training)
May 2019	JSDA Class 1 Sales Representative
Jul 2019	JSDA Internal Control Manager

Date	Certification / License
Jan 2020	Deep Learning G Certification (Generalist)
Oct 2021	Business Law Examination (Grade 3)
Feb 2022	Business Accounting Examination (Grade 3)
Oct 2022	Financial Planner (Grade 3)
Feb 2023	Marketing Examination (Grade 3)
Apr 2024	NFA Swaps Proficiency Requirements (Long Track)

Education

- **SBI Graduate School**, MBA (in progress)
- **The University of Tokyo**, Ph.D. Program, Physics (JSPS Research Fellow DC1)
- **The University of Tokyo**, M.S. Physics (Graduated First in Class / 1st of 48, All "Excellent" grades, GPA 4.0)
- **UCLA Anderson School of Management** (Financial Engineering MBA Course, Trainee Representative)
- (Received early special admission (grade-skipping) to national university based on awards listed below)

Awards & Other

- Gold Medal, Japan Mathematics Competition (Published in Yomiuri Shimbun).
- Represented school at the National Super Science High School (SSH) conference for 3 consecutive years.

Skills & Expertise / Personal Summary

I possess deep expertise in physics, having studied theoretical physics in my Master's program (graduating top of my class) and experimental physics as an assistant and in my Ph.D. program.

I gained experience from System Engineer to Project Manager at a consulting firm and worked as a quant adjacent to the trading floor at a major domestic securities firm.

At Japan's largest megabank, I have promoted the efficiency and full automation of trading operations that involved manual intervention, contributing not only to the quant team but also to the trading and sales teams. I currently lead these initiatives as a manager.

Furthermore, as the founder of Quant Marketing Lab, I have a track record of driving a company's DX from scratch and contributing to its 36-fold sales growth (through system development and marketing automation), balancing management theory from my ongoing MBA with real-world practice.

Thank you for your consideration.

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