Date: February 5, 2025

To: NBER Innovation Research Boot Camp 2025 Selection Committee
National Bureau of Economic Research
1050 Massachusetts Avenue
Cambridge, MA 02138

Subject: Application for NBER Innovation Research Boot Camp 2025

Dear Selection Committee:

I am writing to apply for the NBER Innovation Research Boot Camp 2025. I am a PhD candidate in Economics at the European University Institute (EUI), currently in my fourth year, and I have completed the required two years of PhD coursework in economics. I have not attended the NBER Innovation Boot Camp or Entrepreneurship Boot Camp before.

Complete Contact Information:

- **Name:** Dr. (PhD Candidate) Joel N. Christoph
- **Institution:** European University Institute (Department of Economics), Via delle Fontanelle 18, 50014 San Domenico di Fiesole (FI), Italy
- **Email:** `joel.christoph@eui.eu`
- **Phone:** (+39) 351 773 4452
- **Postal Address:** London, UK and Florence, Italy

Recommendation Letter Writer: Dr. Jonas Kgomo, Founder and Director at Equiano Institute, (`jonas@equiano.institute`).

Thank you for your consideration. I am enthusiastic about the possibility of joining this Boot Camp, engaging with leading scholars, and contributing to the NBER's vibrant community of innovation researchers.

Sincerely,

Joel N. Christoph
PhD Candidate, European University Institute

Joel N. Christoph

London, UK and Florence, Italy

joel.christoph@eui.eu (+39) 351 773 4452 (+41) 772 813 085

Education

PhD in Economics, European University Institute (EUI), Florence, Italy *2021/08 – Present*
> 66% A+ or A in PhD coursework; scholarships from France, EUI, Japan-IMF

M.Res. in Economics, European University Institute *2021/08 – 2022/08*
> 63% A+ or A grade in MRes coursework

M.Sc. in Economics (PhD track), Barcelona School of Economics, Spain *2020/09 – 2021/06*
Tuition waiver on merit, took PhD-level courses

M.Law in Politics & International Relations, Tsinghua University – Johns Hopkins SAIS *2019/08 – 2020/07*

B.Sc. in Economics with a Year Abroad, University College London (UCL) *2015/09 – 2019/07*

University of California Exchange Program & Summer Mandarin Scholarship *2017/09 – 2018/08*

European Baccalaureate, European School of Munich (top percentile), Class President *2006/09 – 2014/07*

Experience

PhD Researcher, European University Institute *2021/08 – Present*
Focus on innovation, macroeconomics, firm dynamics

Founder, 10Billion.org *2024/08 – Present*
An open-source initiative for global public goods for 10 billion people by 2060

Director, Effective Thesis *2023/08 – 2024/08*
Managed a non-profit helping students identify impactful research topics

Research Manager, Existential Risk Alliance *2023/06 – 2023/08*
Oversaw summer fellows' research projects on global catastrophic risks

Short-term Consultant, World Bank *2022/12 – 2023/06*
Modeled financing for energy infrastructure in East Asia

Junior Consultant, International Energy Agency (IEA) *2023/04 – 2023/05*
Worked on tracking public energy spending and policies

Founder and Managing Director, Endeema *2021/06 – 2023/03*
B2B renewable energy software startup

Research Fellow, Nuclear Non-Proliferation Education and Research Center *2022/07 – 2022/08*
Research on small modular reactors (SMRs) and non-proliferation

Summer Research Fellow, Swiss Existential Risk Initiative *2022/06 – 2022/08*
Investigated nuclear reactor risks and resiliency

A.I. Business Analyst, Memorable AI *2021/04 – 2021/06*
Developed computer vision commercialization strategy

Summer Research Fellow, Future of Humanity Institute (Oxford) *2020/07 – 2020/08*
Analyzed AI hardware R&D and long-term risks

Young Ambassador & Research Intern, Carnegie-Tsinghua Center *2019/10 – 2020/06*
Supported research on China's foreign policy

Long-term Research Intern, Energy Aspects *2019/07 – 2019/08*
Forecasted global energy demand for 2020–2040

Innovation Fellow, UCL Arena Centre for Research-based Education *2018/12 – 2019/06*
WordPress development and student engagement

Skills

Technical: Bloomberg, C, EViews, Git, GPT, HTML, LaTeX, MATLAB, Python, PyTorch, R, Stata, WordPress

Languages: Native: French, Japanese; Fluent: Dutch, English, German, Spanish; Intermediate: Italian, Mandarin

Select Publications

- 2024. *Responsibility in International Relations* (Co-Ed.). In Studies in International Relations, Vol. 39. Vienna: IPO.
- 2024. *China's AI Ascent: Implications of Global Technological Leadership*. China Talk Essay Competition.
- 2024. *The Unique Challenge of Governing AI: Lessons from the Digital Revolution*. Tom Morrison Essay Prize.
- 2024. *Governance Reform of the Bretton Woods Institutions*. Atlantic Council Geoeconomics Center.
- 2024. *The AI 'Revolution' and the Future of Employment*. Friedrich Ebert Stiftung.
- 2023. *Economic Incentives for Nuclear Disarmament: Bridging Normative and Pragmatic Approaches*.
- 2023. *Strategic Decision-Making: A Roadmap for Germany to Transition from Crisis Response to Foresight*.
- 2023. *Cybersecurity on the Edge? Policy, Privacy, and the Networked Future*. InterMedia, IIC Journal.
- 2023. *Towards Reliable Misinformation Mitigation: Generalization, Uncertainty, and GPT-4*. arXiv:2305.14928 [cs.CL].
- 2022. *Small Modular Reactors and Nuclear Non-Proliferation*. NEREC Annual Report.
- 2020. *Addressing Coordination Issues in the COVID-19 Crisis to Strengthen EU Solidarity*. TEPSA Policy Paper.
- 2020. *Lessons from History for Companies and Managers Coping with COVID-19*.
- 2020. *Coronavirus and the Global Economic Stimulus*. European Horizons / Medium.
- 2019. *Ethics and Workplace Automation*. Institute of Business Ethics. UK-wide winning essay.

Leadership and Volunteer Experience

Curator, Florence Hub, Global Shapers Community, WEF	*2024/07 – Present*
Emerging Voices Network (EVN) Advisory Board Member, BASIC	*2024/05 – Present*
Member, Catalyst 2030	*2023/11 – Present*
Member, Int'l Student Young Pugwash (ISYP) Leadership Team	*2023/06 – Present*
Member, New European Voices on Existential Risk, European Leadership Network	*2023/04 – Present*
Co-founder, Equiano Institute	*2023/05 – Present*
Co-founder, DualChain (B2C decentralized tech startup)	*2021/04 – Present*
Youth Communicator for a World without Nuclear Weapons, Japan MoFA	*2024/03 – 2024/07*
Bretton Woods 2.0 Fellow, Atlantic Council	*2023/03 – 2024/01*
ICANN78 Fellow, Internet Corporation for Assigned Names and Numbers (ICANN)	*2023/10*
CIVICA Ambassador, CIVICA (European University of Social Sciences)	*2023/01 – 2023/07*
Delegate, World Economic Forum Annual Meeting of the New Champions, Tianjin	*2023/06*
Salzburg Global Fellow, Capital Markets Program	*2023/06*
Organizer, EUI Macroeconomics Working Group	*2022/09 – 2023/06*
Global Shaper, World Economic Forum	*2022/01 – 2023/06*
Dahrendorf Programme Fellow, St Antony's College, Oxford	*2022/11 – 2023/05*
Delegate, Hiroshima-ICAN G7 Youth Summit	*2023/04*
PhD Researchers' Representative, EUI	*2022/01 – 2022/12*
Economics Paper Presenter, BSE, CEU, EUI, INET, Tsinghua, UCL	*2019/04 – 2022/06*
Advanced Track Representative, Barcelona School of Economics	*2020/09 – 2021/06*
Youth Ambassador, Internet Governance Forum	*2020/07 – 2020/11*
Young Ambassador, Carnegie Endowment for International Peace	*2019/10 – 2020/06*
Student Academic Rep, UCL Economics Department	*2018/09 – 2019/06*

Recent Awards and Recognition

- **Japan-IMF Scholarship (JISP)**, IMF Institute for Capacity Development (2024)
- **Grant** for Global Institutions Governing AI, Future of Life Institute (2024)
- **Don Lavoie Fellowship**, Mercatus Center, George Mason University (2024)
- **Summer Research Scholar Grant**, University of Pittsburgh, European Studies Center (2024)
- **Leader of Tomorrow**, St. Gallen Symposium Global Essay Competition (2024)
- **Cosmos Ventures Grant** for "Economic Models for Decentralized AI Governance" (2024)
- Winning Essay in Freiheit—Macht—Politik Essay Contest (2023)
- Winner, JTI Italy Make It Bright Challenge (2023)
- Full Scholarship, University of Barcelona Summer School on Econ. of Science & Innovation (2023)
- Full Scholarships, European Forum Alpbach 2023 and Z2X Festival (2023)
- G20 Youth (Y20) Leader Finalist Award, Indonesia (2022)
- Letter of Support, Malawi's Minister of Education for a carbon offset initiative (2022)
- EU Datathon Top-6 Semi-finalist, European Green Deal category (2022)
- Winner, RENN.tage 'Projekt Nachhaltigkeit' Sustainability Prize (Germany) (2022)

- Yenching & AFLSP Scholarships, Yenching Academy of Peking University (2021)
- Winner, Policy Hack Challenge, Geography of Innovation & Complexity Conference (2020)
- Winner, European Forum Alpbach (EFA) Panorama Essay Contest (2020)
- Dean's Scholarship & Beijing Govt Scholarship, SAIS–Tsinghua (2020)

Recent Professional Courses and Certificates

- **Artificial Intelligence Policy**, Center for AI and Digital Policy (2023)
- **Introduction to Teaching and Learning in Higher Education**, EUI (2023)
- **China Scholarship and Policy Advice: Reaching Decision Makers**, CHERN (2023)
- **Summer Course on Economic Theory & Global Prioritization**, GPI, Oxford (2022)
- **Mediterranean Machine Learning Summer School** (M2L), Milan (2022)

PhD Courses Completed

Compulsory Courses (Block I, II, III):

- Mathematics: A+
- Statistics & Econometrics: A, A-, B+
- Microeconomics: B+, A, A+
- Macroeconomics: A, A, B

ECO Advanced Courses:

- Advanced Industrial Organization: B
- Economic Measurement: A
- The Econometrics of Causality: A A
- Short Course on Production Networks: A
- Advanced Macro Introduction (Part I): A
- Economic History: Policies, Development and Inequality in the Long Run: A
- Firm Dynamics and Innovation: A
- Fiscal and Monetary (EU) Policy and Institutions (Part II): A
- Frontiers of Macro-Labor: A+
- Quantitative Methods and Applications: Firm Dynamics: A
- Topics in Banking and Finance: A+
- Topics in Macroeconometrics: A

Other Courses:

- Firms and Development (Bureau for Research and Economic Analysis of Development)

One-Page Essay: Current and Future Research & Motivation for the NBER Innovation Boot Camp

My current research explores the intersection of innovation, firm dynamics, and macroeconomic performance. Specifically, I study how policies supporting Research and Development (R&D), especially in cutting-edge industries such as renewable energy and AI-driven technologies, shape productivity growth, market structure, and long-term economic performance. Using firm-level patent data, I investigate whether public R&D subsidies crowd in or crowd out private investments in innovation, and to what extent these subsidies affect the trajectory of technological change.

In my latest work, I employ structural econometric methods to identify spillover effects from R&D clusters to peripheral regions and explore how these spillovers influence labor market outcomes and inequality. My motivation is to unravel policy instruments that drive inclusive innovation, ensuring that breakthroughs in AI and clean energy diffuse beyond major research hubs. In parallel, I collaborate on a project with the Equiano Institute to examine how entrepreneurial ecosystems in emerging markets can leverage global technology partnerships to accelerate sustainable growth. Here, the emphasis is on bridging knowledge gaps between regions and generating robust empirical evidence on technology transfer.

In the next phase of my PhD, I intend to deepen these lines of inquiry by focusing on the micro-mechanisms of invention and commercialization. I aim to develop a model capturing how heterogeneous firms respond to changes in R&D incentives, analyzing the role of industry-specific institutional factors—like intellectual property rights regimes and regional tax incentives. I also plan to combine macro-labor perspectives with innovation studies by investigating how skill-biased technological change influences wage dynamics and intergenerational mobility. This research will shed light on how innovation policies can mitigate or exacerbate inequality across diverse socioeconomic groups.

Reasons for Wanting to Attend the Boot Camp

I view the NBER Innovation Research Boot Camp as an unparalleled opportunity to refine my research agenda and acquire rigorous methodological tools. The chance to engage with eminent faculty—including experts such as Pierre Azoulay, Heidi Williams, and Chad Jones—will sharpen my understanding of core innovation theories and frontier questions. Additionally, by participating in lectures focusing on empirical strategies, data sources, and policy design, I hope to gain new insights on how to strengthen the identification strategies in my current work on R&D spillovers.

Moreover, this Boot Camp provides a valuable forum to receive feedback from a supportive cohort of peers committed to the economics of innovation. Discussing preliminary findings, exchanging ideas, and potentially forming collaborative projects will help me expand my research horizons. The chance to attend the NBER Summer Institute Innovation Policy meeting will be especially beneficial in networking with scholars who lead the field, potentially paving the way for future joint papers or research visits.

Ultimately, my goal is to contribute impactful scholarship that informs evidence-based innovation policy, guiding decision makers to foster broad-based technological progress. Attendance at the Boot Camp is a crucial step toward building the expertise, network, and methodological sophistication I need to realize that vision.