NBER Entrepreneurship Bootcamp Application - Summary Page

Name:	Katharina Wildgruber
Address:	Donnersbergerstr. 41, 80634 Munich, Germany
E-mail:	katharina.wildgruber@tum.de
School:	Technical University of Munich, School of Social Sciences

Areas of interest:	Entrepreneurship, Innovation Ecosystems, Nature, Biodiversity, New Markets, Sustainable Technologies & Substitutes
PhD year of entry:	September 2024
PhD completion:	February 2027
Recommendation:	Two letters of recommendation have been written to support Katharina Wildgruber's application: one letter by her supervisor and faculty member Prof. Florian Egli (attached) and one confidential letter by her external PhD supervisor Prof. Melissa (Millie) Chapman.

Curriculum Vitae

Katharina Wildgruber

Address	Donnersbergerstr. 41, 80634 Munich, Germany
Date of birth	15.11.1996
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Academic

Since 09/2024	**PhD Candidate and Researcher, Technical University of Munich, Germany** Research on public financing of the green transition with focus on biodiversity finance
10/2019 - 02/2022	**Master of Science Industrial Engineering and Management, Karlsruhe Institute of Technology (KIT), Germany (Grade: 1.2 on scale from 1 (best) to 5)** Specialisation: Renewable Energy, Sustainability, Innovation, Digital Transformation
08/2021 - 02/2022	**Master Thesis Project, ETH Zurich, Switzerland (Grade: 1.0 on scale from 1 (best) to 5)** Topic: Cross-sectoral collaboration for a green hydrogen value chain
01/2021 - 06/2021	**Erasmus Exchange Semester within Master Studies, NTNU Trondheim, Norway** Focus: Digital Innovation, Resource Economics, Optimization
10/2015 - 09/2019	**Bachelor of Science Industrial Engineering and Management, KIT, Germany** Specialisation: Engineering, Energy Economics, Informatics, Digital Transformation
09/2006 - 07/2014	**High School Maturity (Abitur), Maria-Ward-Gymnasium Munich, Germany** Participation in various student exchange programs with a duration of 1 week to 4 months to Krakow (Poland), Paris (France) and Montréal (Canada)

Professional

07/2022 - 08/2024	**Consultant, Boston Consulting Group, Munich, Germany** Advising leading companies on strategic management decisions, core member of the Energy Practice Group
09/2021 - 04/2022	**Research Assistant, SusTec Research Group, ETH Zurich, Switzerland** Research on hydrogen, supervision of the lecture *Corporate Sustainability*
10/2020 - 06/2021	**Working Student Sustainability Strategy, EnBW AG, Karlsruhe** Implementation of sustainability measures in remuneration and supply chain
03/2020 - 07/2020	**Student Innovation Consultant, ZF Group and Femtec GmbH, Friedrichshafen** Development of a payment system and new business models in e-mobility
05/2019 - 12/2019	**Research Assistant and Bachelor Thesis Student (3 months), Fraunhofer Institute for Systems and Innovation Research (ISI), Karlsruhe** Research on digital transformation and business models of medium-sized companies
09/2018 - 03/2019	**International Intern, Porsche Cars North America, Atlanta, USA** IT project management, interface communication between different departments, modelling and optimisation of processes, organisation of the global Porsche IT summit
10/2016 - 09/2018	**Research Assistant, Fraunhofer ISI, Karlsruhe** Scientific research for new technologies and change projects
06/2018	**Student Assistant, KIT, Karlsruhe** Support in the organization and realization of the ACM e-Energy Conference
03/2016 - 04/2016	**Sales Intern, mux.de OHG, Munich** Creation of customer clusters and administration of the customer database

Extracurricular Activities and Scholarships

DAAD Scholarship 10/2021 - 02/2022	The DAAD (German Academic Exchange Service) supports master thesis projects in an international setting
Ludwig Bölkow Scholarship 08/2021 - 02/2022	The Ludwig Bölkow Fund supports, amongst others, thesis projects in the field of sustainability and renewable energies
Network² -Scholarship by Netze BW 03/2021 - 03/2022	The Network² program is a study- accompanying idealistic and financial scholarship for students with a strong connection to the energy industry and grid technology
Energy and Climate Protection Fund 01/2021 - 06/2021	Reported on energy and climate related topics from Trondheim, Norway. Link: www.energie- klimaschutz.de/energie- reporterin- katharina- wildgruber- in-norwegen/
Leadership Talent Academy 10/2020 - 03/2021	The LTA aims to qualify selected master students and doctoral candidates as future leaders through training on value- oriented personality and career development
Louis Schuler Scholarship Since 04/2020	The Louis Schuler Fund supports the academic education of committed engineering and computer science students with a financial grant
Femtec Careerbuilding Program 09/2019 - 09/2020	The Femtec Careerbuilding Program is an idealistic scholarship which offers female STEM students seminars on core competencies and soft skills and provides them with the connection to companies and universities
Gap Year- Work and Travel 12/2014 - 07/2015	Travelled New Zealand and Australia with a working holiday visa between High School and University, various occupations in food, agriculture and advertising

Social Commitment

Femtec.Alumnae e.V. 10/2020 - today	Mentoring, networking and supporting females in STEM study programs and professional career development (Website: https://www.femtec-alumnae.org/)
EduRef e.V. 10/2017 - 03/2020	Development, organisation and implementation of Java and MS Office courses for refugees (Website: https://eduref.eu/de)

Additional Skills

IT - Skills	Java, Python, Business Process Modelling (BPM), UML Modelling, R, IBM SPSS Statistics
Language Proficiency	German (Mother tongue), English (C1), French (B2)

Personal Interests

Outdoor activities (alpine skiing, cross country skiing, hiking, biking), fitness, travel and exchange with other cultures, modern art, organisation of social events (group excursions, running dinner), visiting concerts

Munich, 07.01.2025

Essay on Research Agenda and Motivation to Attend the NBER Entrepreneurship Boot Camp 2026

By Katharina Wildgruber

Entrepreneurship is a central driver of economic growth and structural transformation. By generating scalable, market-based substitutes for environmentally harmful production systems, it can play a central role in addressing global sustainability challenges. In my PhD at the Technical University of Munich (TUM), I study biodiversity finance, the mobilization of public and private capital to halt and reverse biodiversity loss. A particular focus of my work is on biodiversity-enhancing technologies and substitutes (BETS) emerging from venture capital ecosystems.

My research agenda starts from a capital allocation puzzle. While the Global Biodiversity Framework calls for mobilizing USD 30 billion annually by 2030 from private sources to halt and reverse biodiversity loss, most biodiversity finance still relies on public funding for nature conservation, which struggles to scale (as I have explored in my second PhD paper, currently under peer review). Traditional conservation finance faces structural constraints: weak monetization mechanisms, long-term and uncertain cash flows, and dependence on regulatory stability. Private capital, by contrast, scales only when investments generate competitive, short-term, market-based returns. For sustainable products and process innovations, this implies that they become investable once they emerge as competitive substitutes for incumbent business models. Empirical evidence of this phenomenon can be found in the energy transition (e.g., the large-scale deployment of solar photovoltaics) and in the circular economy (e.g., the adoption of recycled materials).

In my third PhD paper, I systematically map venture-backed startups that develop BETS to avoid, reduce, or monitor pressures on biodiversity. These BETS include sustainable food substitutes and materials, green infrastructure, waste remediation, or monitoring technologies (amongst others). Using large-scale venture datasets and machine-learning classification, I identify which biodiversity pressures attract entrepreneurial attention and capital, and which remain underserved in light of global biodiversity priorities. First results show strong clustering of investments in alternative proteins and precision agriculture. The narrow focus of capital on a subset of solutions mirrors broader venture capital concentration trends and raises concerns about the diversity and direction of innovation from private finance for nature. Identifying empirically grounded patterns of biodiversity entrepreneurship and coherently contextualizing them are what I find both extremely challenging and intellectually compelling to study. Ultimately, my goal is to contribute to an entrepreneurship research agenda that treats planetary boundaries not as exogenous constraints, but as domains of entrepreneurial opportunity, where scalable, revenue-generating business models can redirect capital from nature-degrading to nature-restoring activities.

TUM provides a unique environment for my work. As one of Europe's leading technical universities with a strong startup ecosystem, I have the opportunity to participate in the TUM Catalyst program, where I engage directly with impact-oriented venture building and social innovation incubation alongside my academic studies. This experience has reinforced my interest in how ecosystems around universities, finance, and policy accelerate transformative entrepreneurship and new market creation.

With my participation in the NBER Entrepreneurship Research Boot Camp, I aim to sharpen the embedding of my work in theoretical foundations of entrepreneurship research, particularly regarding determinants of innovation and productivity growth, innovation ecosystems, and the role of public policy. The Boot Camp's intensive format and close engagement with leading scholars provide a unique opportunity to learn from foundational research in the field and to receive focused feedback on my work. Equally important, I look forward to exchanging ideas with peers, as networks with room for intellectual exchange and collaboration are the foundation for the development of new research agendas.

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School of Social Sciences and Technology | Department Governance
Public Policy for the Green Transition

Munich, 17 February 2026

Letter of Recommendation for Katharina Wildgruber – NBER Entrepreneurship Research Boot Camp 2026

Dear Members of the Selection Committee,

I am pleased to write this letter in strong support of Katharina Wildgruber's application to the NBER Entrepreneurship Research Boot Camp 2026. I supervise Katharina's doctoral research at the Technical University of Munich (TUM), where she is pursuing a PhD in Public Policy with a focus on biodiversity finance and sustainable innovation.

Katharina demonstrates an exceptional level of drive, ambition, and scholarly productivity early in her doctoral training. Only 1.5 years into her PhD, her first paper has already been accepted for publication, and her second paper is currently under review at a leading journal (Nature Ecology & Evolution). This pace of progress reflects her discipline and analytical strength, as well as also her capacity to formulate and pursue policy-relevant research questions in a rigorous manner.

The third paper in her PhD makes Katharina an ideal candiate for the NBER Entrepreneurship Research Boot Camp 2026. In the paper, she develops the concept of Biodiversity-Enhancing Technologies and Substitutes (BETS), developed by startups and financed by venture capital. Building on a large-scale dataset of early-stage firms, she analyzes how entrepreneurial innovation can substitute conventional production systems that lead to biodiversity loss and under which conditions these BETS attract private capital. This work connects biodiversity finance to questions at the core of entrepreneurship research, namely the monitoring of technological opportunities, financing under uncertainty, and the interaction between public policy and venture ecosystems.

Katharina combines methodological sophistication with strategic thinking. She is highly proficient in quantitative analysis, including machine learning approaches for large text datasets, and is equally capable of positioning her work in conceptual discourses. Beyond her remarkable technical abilities, Katharina stands out for her interdisciplinary thinking and her strong team mindset. She does not simply execute research tasks; she develops original research ideas and critically engages with existing literature. Her interdisciplinary background, combining engineering and economics studies with practical work experience in business and

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Prof. Dr.
Florian Egli

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sustainability, allows her to bridge technological innovation and financial economics in a way that is rare at the doctoral level. In our team, Katharina motivates fellow PhD students through her engagement and sense of responsibility. She consistently steps up to take ownership of shared tasks, coordinates and supervises master's students with care and professionalism, and contributes actively to teaching. Beyond her formal responsibilities, she strengthens the group's team spirit by organizing academic and social activities and is always willing to support colleagues wherever needed. Her reliability, initiative, and collaborative mindset make her a central and highly valued member of the team.

In addition to her academic work, Katharina participates in the TUM Catalyst program, a social innovation incubation initiative. Through this program, she engages with external stakeholders, tests project ideas, and develops financially sustainable models. This experience complements her research by strengthening her practical understanding of entrepreneurial ecosystems and impact-oriented innovation.

The NBER Entrepreneurship Research Boot Camp is uniquely suited to accelerate Katharina's professional development as a scholar of entrepreneurship. Its emphasis on empirical strategies and deep engagement with key theoretical frameworks aligns perfectly with her trajectory and will help position her work even better in the field. At the same time, her research on biodiversity-driven innovation introduces an emerging frontier that expands how we think about opportunity formation, financing, and market creation for environmental benefits. I am confident she will be an intellectually engaged and personally motivated contributor to the cohort.

I strongly recommend Katharina for the NBER Entrepreneurship Research Boot Camp and I am sure she will make excellent use of this opportunity and be an outstanding member of the 2026 cohort.

Yours sincerely,



Prof. Dr. Florian Egli

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Department of Environmental Systems Science
Institute for Environmental Decision Making

ETH Zurich
Prof Dr Melissa Chapman
Tenure Track Assistant Professor
Sonneggstrasse 33
8092 Zurich, Switzerland

Dear NBER Selection Panel,

I am delighted to support Katharina Wildgruber's application to the NBER Entrepreneurship Research Boot Camp 2026. Katharina and I have been collaborating on her research on private finance for biodiversity-enhancing technologies and substitutes (BETS), and I have followed the development of her doctoral work with great interest and admiration.

Katharina's research addresses one of the most pressing yet underexplored questions at the intersection of entrepreneurship and sustainability: under what conditions can technological startups generate commercially viable substitutes for biodiversity-degrading production systems? Rather than focusing solely on traditional conservation finance, she examines entrepreneurial ventures embedded in existing economic sectors such as agriculture, food systems, infrastructure, and natural materials. By doing so, she positions biodiversity not as a peripheral environmental issue, but as a central challenge for innovation, industrial transformation, and entrepreneurial ecosystems.

When designing original research ideas, Katharina demonstrates exceptional curiosity, creativity and ambition. In our joint work, she develops a typology of BETS that systematically links startup-level innovation to specific ecological pressures. This concept creates a structured bridge between ecological science and entrepreneurship research, enabling new empirical and theoretical questions. Her work demonstrates a strong ability to identify meaningful research gaps at the intersection of disciplines.

In her analyses, Katharina combines conceptual 'big picture' thinking with impressive analytical know-how. She is very proficient in complex data analysis and applies state of the art machine learning techniques to classify and interpret innovation activities. Her interpretation of results is careful, nuanced, and always anchored in broader debates within entrepreneurship and innovation research. Thereby, she generates new insights for entrepreneurial ecosystems, investor incentives, institutional environments, and technological learning dynamics. Her work engages with lessons from other transformative sectors, such as the clean energy transition, to examine how policy incentives and cost trajectories interact to enable market diffusion. By bringing biodiversity innovation into dialogue with core entrepreneurship theory, she contributes not only to sustainability research but also to the broader field of entrepreneurship.

In every-day collaboration, Katharina is a genuine pleasure to work with. While being intellectually confident, she acts consistently humble in team interactions, welcomes feedback and engages in discussions. In collaborative settings, she combines independence with a strong team orientation: she takes ownership of complex analytical tasks while remaining deeply attentive to shared goals and collective learning. She critically interrogates own and others' assumptions, and continually refines her theoretical framing in response to constructive input. This intellectual maturity, coupled with her reliability and generosity as a colleague, makes her an outstanding collaborator.

Katharina's research advances central questions in entrepreneurship theory, particularly how environmental pressures shape opportunity identification, resource mobilization, and innovation pathways in emerging

markets. The NBER Entrepreneurship Research Boot Camp will enable her to further integrate her work with core theoretical frameworks and frontier empirical strategies that define the field. In turn, she will contribute a novel and highly relevant empirical domain, nature and biodiversity innovation, that broadens ongoing conversations about entrepreneurship's role in addressing grand challenges. Katharina will bring a fresh and important perspective to the Boot Camp cohort: integrating sustainability innovation with cutting-edge entrepreneurial thinking. Her presence will enrich discussions and expand the intellectual horizons of her peers.

I strongly endorse her application. I am confident that she will both benefit greatly from the Boot Camp and contribute meaningfully to the intellectual community it brings together.

Sincerely,



Melissa Chapman
Assistant Professor of Environmental Policy
ETH Zürich | Department of Environmental Systems Science
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