Lennart John Baals

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Professional Experience

Ask2.Ai Inc **New York City, USA**
Intern PhD Researcher (hybrid), working in the field of graph-based credit scoring,
credit limit estimation, and credit risk assessment in consumer lending *02/2025 – today*

- Review of current credit risk and credit limit modeling literature.
- Design of supervised and sequential models (Random Forests, XGBoost, Neural Networks, LSTMs) to predict default risk and customer behavior.
- Implementation and benchmarking dimensionality reduction (PCA, t-SNE, UMAP) and clustering algorithms (K-Means, DBSCAN, Spectral Clustering) for customer segmentation in retail banking.
- Development of a novel expected profit maximization model for static credit limit assignment, and modeling dynamic credit limit adjustment for a corporate banking client.

Bern University of Applied Sciences **Bern, Switzerland**
Employed Doctoral Researcher *12/2022 – 06/2026*

- MSc "Digital Finance" Teaching Assistant (Fall 2023–2024): orchestration; exam design & grading; ML/AI content.
- BSc "Digital Finance" Teaching Assistant (Fall 2022–2024): organisation; support in development of ML/AI curriculum, assignments, and labs.
- Administration and support for research networks under Prof. Dr. Jörg Osterrieder in the form of scheduling, deliverables tracking, reporting inputs, and event support:
  - MSCA Industrial Doctoral Network on Digital Finance (€3.8m; >20 institutions; 100+ researchers).
  - COST Action on FinTech & AI in Finance (€1.0m; 2020–2024; ~400 academics across 51 countries).

Centuros Consult GmbH **Hamburg, Germany**
Junior Consultant working in the field of corporate restructuring and distressed M&A *01/2020 – 05/2020*
Intern *06/2019 – 09/2019*

- Collaboration and support in projects and M&A (Mergers & Acquisitions) processes.
- Creation of PowerPoint slides for an expert opinion according to IDW S6.
- Preparation of teasers and information memorandums for distressed M&A projects.
- Independent information research and data processing of company figures, including OPOS lists, debtors/creditors, and personnel key figures.
- Assistive activities in creating company analyses, e.g., SIPOC or Porter's Five Forces.
- Market and competitive analysis for the respective projects.
- Analysis and evaluation of market studies in the respective industries of company clients.

FALK GmbH & Co KG, Heidelberg **Heidelberg, Germany**
Intern *07/2016 – 08/2016*

- Preparation of annual financial statements for corporations and documentation of creation documents.
- Preparation of liquidation opening balances for corporations.
- Collaboration in cash audits in insolvency proceedings.
- Processing and research of sales tax and insolvency law issues.
- Literature research on tax law questions.

Education

The University of Twente **Enschede, The Netherlands**

PhD Candidate (Doctorate), Industrial Engineering and Management Science (IEMS) *12/2022 – 06/2026*

- Faculty of Behavioural, Management and Social Sciences (BMS), Department of High-Tech Business and Entrepreneurship (HBE)
- Research area: quantitative finance, credit risk modelling; financial engineering
- Dissertation: "Risk Management in Digital Finance: Assessment and Pricing in an Emerging Fintech Era"
- Funded by the Swiss National Science Foundation (SNSF) under the Project "Network-based Credit Risk Models in P2P Lending Markets", Project ID: 100019E-205487
- Supervisors (University of Twente): Prof. Dr. Jörg Osterrieder; Prof. Dr. ir. Martijn Mes
- Co-Supervisor: Prof. Dr. Ali Hirsa (Columbia University, New York City)

Columbia University **New York City, USA**

Visiting PhD Researcher *02/2025 – 09/2025*

- The Fu Foundation School of Engineering and Applied Science (SEAS), Department of Industrial Engineering and Operations Research (IEOR)
- Supervisor: Prof. Dr. Ali Hirsa

University of Dublin, Trinity College **Dublin, Ireland**

Doctoral studies (PhD programme), Finance 09/2021 – 11/2022

- Completed first-year doctoral coursework / research training
- Transferred to University of Twente (PhD)

Achievement of the academic degree Master of Science (1:1) *30.10.2021*

University of Dublin, Trinity College **Dublin, Ireland**

Trinity Business School, Master in Finance 09/2020 – 08/2021

- Master Thesis: "On the Diversifier, Hedge, and Safe-Haven Properties of Cryptocurrencies: Evidence from Range-Based GARCH Models."

Achievement of the academic degree Bachelor of Science *17.12.2018*

University of Mannheim **Mannheim, Germany**

Mannheim Business School, Bachelor in Business Administration. *09/2015 – 12/2018*

University of Dublin, Trinity College **Dublin, Ireland**

Erasmus Semester abroad 09/2017 – 12/2017

Achievement of the Abitur (Grade: 1.5) *10.7.2015*

Stadtteilschule Blankenese **Hamburg, Germany**

Gymnasial High School 08/2012 – 07/2015

Hamburg Chamber of Commerce **Hamburg, Germany**

Graduate of the 2013/2015 Young Academy 08/2013 – 07/2015

Professional Contributions

Journal Reviewer for *International Review of Financial Analysis* (ABS 3) 10/2021 – today

International Journal of Forecasting (ABS 3) 05/2025 – today

Finance Research Letters (ABS 2) 12/2022 – today

Financial Innovation (ABS 2) 11/2024 – today

Journal of Economics and Business (ABS 2) 06/2025 – today

Global Finance Journal (ABS 2) 06/2025 – today

Expert Systems with Applications (ABS 1) 12/2024 – today

Student Commitment

University of Dublin, Trinity College **Dublin, Ireland**

Doctoral Assistant for the Database Management at Trinity Business School *09/2021 – 11/2022*

- Management and query dealing of content-based inquiries from bachelor and master students with regards to the databases of Bloomberg, Thomson Reuters Eikon, and Standard & Poor's Capital IQ.

Publications

- Yizhi Wang, Florian Horky, Lennart J. Baals, Brian M. Lucey & Samuel A. Vigne (2022) Bubbles all the way down? Detecting and date-stamping bubble behaviours in NFT and DeFi markets, *Journal of Chinese Economic and Business Studies*, 20:4, 415-436.
- Liu, Y., Baals, L. J., Osterrieder, J., & Hadji-Misheva, B. (2024). Network centrality and credit risk: A comprehensive analysis of peer-to-peer lending dynamics. *Finance Research Letters*, 63, 105308.
- Liu, Y., Baals, L. J., Osterrieder, J., & Hadji-Misheva, B. (2024). Leveraging network topology for credit risk assessment in P2P lending: A comparative study under the lens of machine learning. *Expert Systems with Applications*, *252*, 124100.

Conferences / Presentations

- Paper entitled "Towards a Research Agenda on the Financial Economics of NFTs" at the CryptoAssets and Digital Asset Investment Conference at Rennes Business School, April 7-8 2022.

- "Towards a Research Agenda on the Financial Economics of NFTs" at the 1st Conference on International Finance, Sustainable and Climate Finance and Growth (CINSC) at the Universitá degli Studi di Napoli 'Parthenope', June 12-14 2022.

- Paper entitled "Leveraging network topology for credit risk assessment in P2P lending: A comparative study under the lens of machine learning" with Ph.D. colleague Yiting Liu at the COST Action FinAI: FinTech and AI in Finance - Training School at the University of Twente, June 12-16, 2023.

- Support in the organisation and conference execution, and presented a paper entitled "Leveraging Network Topology for Credit Risk Assessment in P2P Lending: A Comparative Study under the Lens of Machine Learning" at the 8th European COST Conference on Artificial Intelligence in Finance at Bern Business School, September 29 2023.

- Paper entitled "Network centrality and credit risk: A comprehensive analysis of peer-to-peer lending dynamics" at the COST FinAI Meets Istanbul Conference on Fintech and Artificial Intelligence in Finance at Yıldız Technical University, May 20-21 2024.

Thesis Supervision

- Supervision of a Bachelor thesis titled: "Sustainable Equities and their Sensitivity to Interest Rates: An Analysis of Investor Behaviour in Crisis"
- Supervision of a Bachelor thesis titled: "Has the 2022 and 2023 US and Eurozone rise in interest rates affected the performance and long-term feasibility of sustainable investments"

Teaching Experience

- Teaching assistant in the Trinity MBA program for the module BU7031 "Entrepreneurial Finance" taught by Professor Bill Cockrum, UCLA Anderson School of Management. Teaching activities related to assessing and grading student work. Furthermore, supporting the teaching team surrounding Professor Cockrum in the organisation of the module.

- External tutor in the Columbia Master program 'Management Science and Engineering' for COST 1 group tutorials supervised by Professor Dr. Ali Hirsa, Columbia University. Mentoring a group of students (4-8) in their process of applying coding techniques and modelling skills to research projects related to AI, finance, and risk analysis.

Skills

- Languages: German, fluent, English fluent, Spanish, basic level, French, basic level
- Programming: Python (intermediate), R (intermediate)
- Microsoft Office Suite (Word, Excel, PowerPoint)
- Specialisation in Financial Engineering and Risk Management (Columbia University)

Bern, 8th January 2026

Lennart John Baals