Dr. Philip Heltweg

+49 176 47 555 775 | Paris, France | philip@heltweg.org | www.heltweg.org

Summary

I am a product-focused technologist with a solid background in software engineering and data science, strong communication skills with high-level stakeholders, and experience managing projects and budgets. Looking for an opportunity to solve complex technical challenges in an innovative company with flat hierarchies.

Education

Doctorate (Ph.D.), Computer Science — Erlangen, Germany
Friedrich-Alexander-University Erlangen-Nürnberg — *Dec 2021 — Sep 2025*

- Passed with distinction, achieving the best possible grade of 1.0
- Thesis: Open Collaborative Data Engineering With Subject-Matter Experts Using Domain-Specific Languages

Master of Science, Data Science — Hagen, Germany
University of Hagen — *Oct 2022 — Apr 2025*

- Completed in self-directed study in addition to a full-time job

Master of Science, Practical Computer Science — Hagen, Germany
University of Hagen — *Apr 2020 — Oct 2021*

- Passed with distinction, achieving the best possible grade of 1.0
- Student assistant at the Chair of Knowledge-Based Systems (Prof. Dr. Beierle)

Bachelor of Science, Information Systems — Münster, Germany
University of Münster — *2009 — 2012*

- Student assistant at the Databases and Information Systems Group (Prof. Dr. Vossen)

Work Experience

Isselthal Industries UG

Founder — Apr 2019 — Present
Raesfeld, Germany

Boutique engineering firm delivering technical due diligence, architecture assessments, and complex software and data engineering. We work with clients who need expert judgment and end-to-end ownership. Clients include Springer Nature, ESL FACEIT Group, and Popdog.

Friedrich-Alexander-University Erlangen-Nürnberg

Scientific Staff — Dec 2021 — Nov 2025
Erlangen, Germany

I contributed to research projects in data engineering, data science, and software engineering using qualitative and quantitative methods such as controlled experiments. I developed production-grade software for collaborative data engineering as part of my Ph.D., conducted research published in leading journals, and collaborated with industry partners through the Software Campus program. Additionally, I taught and supervised students in the domains of data science and data engineering.

ESL FACEIT GROUP

Senior Technical Product Manager — Feb 2018 — Apr 2019
Cologne, Germany

I managed multiple product initiatives from concept to market, including the ESL Play App with 2M+ installs and 100k+ monthly active users. I coordinated cross-functional teams, prioritized work across software engineering and design, and collaborated with C-level management and external partners such as AT&T, Intel, and Valve Corporation to deliver competitive gaming products and event platforms.

- Product development across multiple projects from initial pitch to market entry, among others:

- ESL Play App, competitive gaming, iOS/Android
  (2M+ installs, 100k+ MAU, 4+ avg rating)
- ESL Event App, esports stadium events, iOS/Android
  (30+ events, 4+ avg rating)
- DotA game integration, automated tournament management for 1k+ concurrent teams
- Hearthstone game integration, technical feasibility evaluation and development of a prototype with external partners

Technical Product Manager & Lead Developer ESL Mobile Mar 2015 — Feb 2018
Cologne, Germany

I established and worked with a team on the mobile expansion of ESL products, delivering apps for iOS and Android in a Scrum environment. We used a hybrid technology stack including TypeScript, Java, HTML5/CSS with Ionic, Angular, Cordova, and Play Framework to develop and maintain high-quality, production-ready mobile applications.

- Established and led the mobile development team with a focus on cross-platform apps
- Hired software engineers and designers
- Published three apps on iOS and Android
  (ESL Play App, ESL Event App, ESL Katowice App)
- Created and maintained backend infrastructure for mobile apps
- Planned software architecture and infrastructure spending

Full Stack Software Developer Jan 2013 — Mar 2015
Cologne, Germany

I contributed to developing the technical backbone for a community of millions of gamers worldwide. Working in a medium-sized Scrum team, I helped build and maintain a wide array of services, ensuring reliable, high-performance software across the platform.

- Full-stack software engineering on the matchmaking service and tournament system for ESL Play with 9+ million registered users
- Transitioned a legacy PHP4 monolith to microservice architecture in Java
- Worked in a high-velocity agile development environment with multiple releases daily

Grants & Awards

100k € Software Campus for Future Leaders in IT with Springer Nature, Federal Ministry of Education and Research, 2022

- Software Campus is a competitive accelerator for leadership talents in IT
- Hired and managed a team of software engineers and students for a 19-month research project about collaborative data engineering with a budget of 100k €
- Completed six internal management trainings with industry partners such as Volkswagen, Merck, Software AG, TRUMPF, DATEV, and Holtzbrinck Publishing Group

Oliver Wyman-AlumniUm-Junior-Award, University of Münster, 2011

- Awarded as one of the top 3 students of the year

Other Experience

Scientific Service:

- Reviews for Journal of Computer Languages (COLA), Communications of the Association for Information Systems (CAIS), Empirical Software Engineering (EMSE), Hawaii International Conference on System Sciences (HICSS), International Conference on Software Business (ICSOB), 2022 - present

Teaching:

- Advisor for 14 M.Sc./B.Sc. theses and projects, Friedrich-Alexander-University Erlangen-Nürnberg, 2022 - 2025
- Developed and taught a course on advanced methods of data engineering to 450+ students, Friedrich-Alexander-University Erlangen-Nürnberg, 2023 - 2025

Languages:

- German (native)
- English (fluent)
- French (basic)
- Portuguese (basic)

Scientific Publications

[1] J. Jablonski, G.-D. Schwarz, P. Heltweg, and D. Riehle, "Optimization Opportunities for Cloud-Based Data Pipeline Infrastructures," *arXiv [cs.DC]*, Apr. 2026, [Online]. Available: https://arxiv.org/abs/2604.01954

[2] P. Heltweg, G.-D. Schwarz, and D. Riehle, "Can a domain-specific language improve program structure comprehension of data pipelines? A mixed-methods study," *Empirical Software Engineering*, vol. 31, no. 1, p. 38, Feb. 2026, doi: 10.1007/s10664-025-10746-7.

[3] P. Heltweg, "Open Collaborative Data Engineering With Subject-Matter Experts Using Domain-Specific Languages," Doctoral dissertation, Erlangen, Germany, 2025.

[4] G.-D. Schwarz, P. Heltweg, and D. Riehle, "Balancing technology heterogeneity in microservice architectures," *Empirical Software Engineering*, vol. 30, no. 5, pp. 1–46, Oct. 2025, doi: 10.1007/s10664-025-10684-4.

[5] P. Heltweg, G.-D. Schwarz, R. Dirk, and Q. Felix, "An Empirical Study on the Effects of Jayvee, a Domain-Specific Language for Data Engineering, on Understanding Data Pipeline Architectures," *Software: Practice & Experience*, 2025, doi: 10.1002/SPE.3409.

[6] P. Heltweg, D. Riehle, and G.-D. Schwarz, "Is spreadsheet syntax better than numeric indexing for cell selection?," *arXiv [cs.PL]*, May 2025, [Online]. Available: https://arxiv.org/abs/2505.23296

[7] P. Heltweg and D. Riehle, "A Systematic Analysis of Problems in Open Collaborative Data Engineering," *Trans. Soc. Comput.*, vol. 6, no. 3–4, pp. 1–30, Dec. 2023, doi: 10.1145/3629040.

[8] P. Heltweg and D. Riehle, "Challenges to Open Collaborative Data Engineering," in *Proceedings of the 56th Hawaii International Conference on System Sciences*, T. X. Bui, Ed., Hyatt Regency Maui, Jan. 2023, pp. 679–688. doi: https://hdl.handle.net/10125/102714.

[9] K. Sauerwald, P. Heltweg, and C. Beierle, "Certification of Iterated Belief Changes via Model Checking and its Implementation," in *19th International Workshop on Non-Monotonic Reasoning (NMR 2021), Hanoi, Vietnam, November 2-5, 2021, Proceedings*, L. Amgoud and R. Booth, Eds., 2021, pp. 250–254. [Online]. Available: https://nmr.cs.tu-dortmund.de/proceedings/NMR2021Proceedings.pdf#page=257

[10] K. Sauerwald and P. Heltweg, "On Using Model Checking for the Certification of Iterated Belief Changes," in *Proceedings of the 7th Workshop on Formal and Cognitive Reasoning co-located with the 44th German Conference on Artificial Intelligence (KI 2021), Berlin, Germany, September 28, 2021*, C. Beierle, M. Ragni, F. Stolzenburg, and M. Thimm, Eds., in CEUR Workshop Proceedings, vol. 2961. CEUR-WS.org, 2021, pp. 23–33. [Online]. Available: http://ceur-ws.org/Vol-2961/paper_3.pdf

[11] P. Heltweg, "Implementing a Structured Approach to Belief Revision by Deterministic Switching Between Total Preorders," Master's thesis, 2021.

Scientific Software

Jayvee: Jayvee is a domain-specific language (DSL) for the modeling and automated processing of data pipelines by subject-matter experts. https://github.com/jvalue/jayvee