**MASM KAVN, PhD** *SOFTWARE ARCHITECT · PRODUCT STRATEGIST* 96050 Bamberg, Germany  
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**Summary**

Innovative software architect and product strategist with a proven track record of leading successful projects across diverse domains (data architecture, social networks, mobile apps & games, robotics & AI), team sizes (2-10), and settings (innovative agile B2C settings to R&D projects with €3.5 million in public funding). With expertise at the intersection of engineering and product leadership, I excel in delivering cutting-edge solutions that drive business growth and enhance user experiences.

**Key Skills:**

* **Software Development:** Python, Docker multi-container, Linux CLI, git, and low-code/no-code tools like bubble.io. Formerly, C++, Visual Studio, Lisp, Java, Eclipse.
* **Databases:** MongoDB, Neo4j, SQL, Google Firebase, and RDF.
* **Leadership:** Empathetic and example-setting leader/coach. Skilled in project leadership, utilizing Agile/Lean methodologies for effective team and change management.
* **Architecture:** Experience with (read-heavy) distributed scalable architectures (ex., stateless application servers that scale horizontally), modular monoliths (clean/hexagonal architecture), and designing HTTP API interfaces.
* **Domain Expertise:** Deep understanding of data integration, cataloguing, and domain modeling, with a background in AI and robotics.
* **Soft Skills:** Possess strong critical and conceptual thinking abilities. Effective at communicating complex ideas in one-to-one and public speaking settings.

**Professional Experience**

**University of Bamberg, Bamberg, Germany**  
*Research Associate (Architect | Team Lead)*  
2015 - 2020

* Spearheaded a 4-year project to develop a data management SaaS for a €3.5 million EU manufacturing project, optimizing data discovery, collaboration, and turnaround time, resulting in enhanced operational efficiency within a consortium of 8 companies. (Refer to github.com/simutool for detailed project insights)
* Cultivated robust long-term relationships with the 10+ key external partners, facilitating deep domain understanding and precise identification of requirements.
* Engineered a read-heavy, horizontally scalable SaaS, ensuring seamless operations and future-proof architecture (ex., stateless application servers).

**TayaIT, Cairo, Egypt**  
*Team Leader | Software Architect | R&D Engineer*  
2011 - 2014

* Directed agile technical teams, ranging from 2 to 5 members, in the development of two enduring social media/mobile products, driving perpetual augmentation of app rankings (4.5 starts) and a 10-fold increase in user engagement (See “Greetings Studio” and “Tawla” in projects section).
* Reduced feedback-development cycle times by 25% by coordinating cross-functional collaboration between technical, business, and UI/UX teams; streamlining workflows and fostering tighter cooperation and heightened productivity.
* Saved the company over 10-man months by investigating emerging technologies and alternative project paths and advising the CEO in adopting better paths or avoiding dead-ends and sub-optimum paths.

**Projects**

**Muze AI** (Open Source Software)  
github.com/n42r/muze-ai (2023 - 2024)

* Conceptualized and developed an early AI/LLM music discovery tool, bypassing the reliance on Spotify's music recommendation metadata.

**Guestrrday** (Open Source Software)  
github.com/n42r/guestrrday (2022 - 2023)

* Engineered an open-source music tagging tool capable of processing over 20,000 items, enhancing music organization and accessibility.

**The Basin Network** (Doctoral Project)  
n42r.github.io/phd (2019 - 2023)

* Conceived and developed a novel architectural pattern for data cataloging, surpassing the state­-of-the-art (ex., data mesh, data space) in 3 respects: level of detail, generalization, and democratization in technology development.
* Standardized a comprehensive architecture facilitating data exchange, governance, interoperability, and effective management of data as an asset, culminating in the award of a PhD with distinction.
* Published findings in 2 journals, contributing to advancements in the field of data management.

**SIMUTOOL Data Lake**  
github.com/simutool (2015 - 2019)

* Led a project to develop a data lake SaaS for an 8-company EU project, fostering close data-driven cooperation and cutting turnover time by 30%.
* Developed the back-end server (python, Flask, WSGI, REST, Neo4J, Semantic Data Modeling, RDF, JSON-LD) as well as a CRUD web application (Apache Server, web2py framework, HTML, CSS. MySQL).
* Led developers in an agile setting to develop client applications (Java, Spring Boot, NodeJS, Graphana, inFluxDB) leading to an ecosystem of smoothly integrated and value-added services.

**Greetings Studio**  
n42r.github.io/gs (2012 - 2014)

* Directed the agile development of a social network and Apple iOS mobile app facilitating the creation and sharing of E-cards and images, optimizing user engagement leading to 10-fold growth in user base.
* Architected the for scalability and maintainability, leading to a reduction of 40% of extra development that was typically spent circumventing technical architecture debt.

**Tawla**  
n42r.github.io/tw (2011 - 2013)

* Elevated app ratings from 3 to 4.5/5 stars through the implementation of advanced AI players for the board game, enhancing gameplay dynamics.
* Achieved a 10% increase in positive reviews due to devising and implementing a sophisticated random number generator for the dice algorithm, which resulting in a more unpredictable game flow and hence enjoyable gameplay.

**ArtSapiens 2D Soccer**  
ssim.robocup.org (2010 - 2011)

* Co-founded and co-led a team of 10 in developing robotics/AI software to compete in the International RoboCup Competition, which qualifications and earned a spot in 2011 competition in Kuala Lumpur, Malaysia.
* Led research and development efforts, focusing on critical components such Markov decision models, which played a key role in qualifying the project to the competition.

**Education**

**Otto Friedrich Universität Bamberg, Bamberg, Germany**  
*PhD in Information Systems & Applied Computer Science* (2023)

**The German University in Cairo, Cairo, Egypt**  
*MSc in Computer Science & Engineering* (2010)  
*BSc in Computer Science & Engineering* (2008)

**Publications**

* "Data Sharing Markets for Integrating IoT Data Processing Functionalities." CCF Transactions on Pervasive Computing & Interaction, 2021.
* "Semantic Data Management for Experimental Manufacturing Technologies." Datenbank Spektrum, 2018.
* "Focused Belief Revision as a Model of Fallible Relevance Sensitive Perception." Künstliche Intelligenz, 2010.
* "High-Level Perception as Focused Belief Revision." European Conference on AI (ECAI), 2010.

**Languages**

* English: Fluent
* Arabic: Fluent
* German: B1 Telc Certified (Good Understanding, Basic Speaking)