



## Paul Schmiedmayer

- Instructor, Biodesign Program
- Research Engineer, School of Medicine - MDRP'S - Biodesign Program

### Bio

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#### BIO

Dr. Schmiedmayer is an Instructor at the Stanford School of Medicine and the Lead for Artificial Intelligence and Assistant Director of Digital Health at Stanford University's Mussallem Center for Biodesign. As a researcher at the intersection of AI, medicine, and software engineering, his work explores novel approaches to developing scalable, patient-centered platforms that harness AI and connected devices to deliver real-time, personalized health insights. His research addresses a critical gap by creating and investigating methodologies in healthcare software engineering, focusing on scalable platforms that enhance patient access to healthcare.

He earned his doctoral degree (Dr. rer. nat.; the German equivalent of a PhD in computer science) from the Technical University of Munich, where he studied software engineering, mobile systems including smart devices, the application and integration of machine learning techniques, and the evolution of web service-based distributed systems. He holds a master's and bachelor's degree in computer science from the Technical University of Munich.

#### ACADEMIC APPOINTMENTS

- Instructor, Biodesign Program

#### PROFESSIONAL EDUCATION

- Dr. rer. nat., Technical University of Munich , (German equivalent of a PhD in computer science) (2022)
- M.Sc., Technical University of Munich , Informatics (2019)
- B.Sc., Technical University of Munich , Informatics (2017)

### Research & Scholarship

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#### CURRENT RESEARCH AND SCHOLARLY INTERESTS

A critical challenge in modern medicine is ensuring equitable access to comprehensive healthcare, particularly for underserved populations. Current healthcare systems often lack scalable, cost-effective, and personalized solutions, struggling to translate research innovations into practical applications.

Dr. Schmiedmayer's research addresses these challenges by developing scalable, intelligent, data-driven systems that leverage patient data and connected devices to provide real-time, personalized healthcare. He aims to validate these solutions by deploying AI-based models on resource-constrained, patient-facing devices, such as smartphones and smart devices, ensuring that personalized medicine is both cost-effective and privacy-preserving. The research's long-term goal is to create closed-loop systems that seamlessly integrate cutting-edge AI research with clinical practice,

leveraging software and hardware integrations to identify novel digital biomarkers and making healthcare personalized, scalable, equitable, and accessible to all.

A cornerstone of Dr. Schmiedmayer's research is the Stanford Spezi open-source software ecosystem. Spezi emerged from identifying key challenges in healthcare software development across numerous digital health projects. The open-source software ecosystem features a novel, modular, interoperable architecture that integrates healthcare standards, accelerates digital health innovation, and meets the growing demands of AI integrations. Without dedicated funding, Spezi has thrived on project-based use and open-source contributions, attracting over 500 contributions from more than 20 developers in just two years. Spezi now supports over 20 digital health and AI projects at Stanford and beyond, with 1,800 GitHub stars and contributions from over 90 collaborators, highlighting its significant impact.

You can learn more about Dr. Schmiedmayer's research projects at <https://bdh.stanford.edu> and visit <https://spezi.stanford.edu> to learn more about the Stanford Spezi ecosystem.

## Publications

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### PUBLICATIONS

- **Fine-tuning LLMs in behavioral psychology for scalable health coaching.** *NPJ cardiovascular health*  
Mantena, S., Johnson, A., Oppezzo, M., Schütz, N., Tolas, A., Dojjad, R., Mattson, C. M., Lawrie, A., Ramirez-Posada, M., Schmiedmayer, P., Linos, E., King, A. C., Rodriguez, et al  
2025; 2 (1): 48
- **Dynamic fog computing for enhanced LLM execution in medical applications** *SMART HEALTH*  
Zagar, P., Ravi, V., Aalami, L., Krusche, S., Aalami, O., Schmiedmayer, P.  
2025; 36
- **LLMonFHIR: A Physician-Validated, Large Language Model-Based Mobile Application for Querying Patient Electronic Health Data.** *JACC. Advances*  
Schmiedmayer, P., Rao, A., Zagar, P., Aalami, L., Ravi, V., Zahedivash, A., Yao, D. H., Fereydooni, A., Aalami, O.  
2025; 4 (6 Pt 1): 101780
- **Enhancing Distress Tolerance Skills in Adolescents With Anorexia Nervosa Through the BALANCE Mobile App: Feasibility and Acceptability Study.** *JMIR formative research*  
Miranda, C., Matheson, B., Datta, N., Whyte, A., Yang, H. J., Schmiedmayer, P., Ravi, V., Aalami, O., Lock, J.  
2025; 9: e70278
- **Spatial Continuity: Investigating Use Cases of Spatial Computing for Users with Low Vision**  
Heidekrueger, P., Bruegge, B., Aalami, O., Schmiedmayer, P., ACM  
ASSOC COMPUTING MACHINERY.2025
- **GPTCoach: Towards LLM-Based Physical Activity Coaching**  
Jorke, M., Sapkota, S., Warkenthien, L., Vainio, N., Schmiedmayer, P., Brunskill, E., Landay, J. A., ACM  
ASSOC COMPUTING MACHINERY.2025
- **Comprehensive real time remote monitoring for Parkinson's disease using Quantitative DigitoGraphy.** *NPJ Parkinson's disease*  
Hoffman, S. L., Schmiedmayer, P., Gala, A. S., Wilkins, K. B., Parisi, L., Karjagi, S., Negi, A. S., Revlock, S., Coriz, C., Revlock, J., Ravi, V., Bronte-Stewart, H.  
2024; 10 (1): 137
- **Quantitative DigitoGraphy: a Comprehensive Real-Time Remote Monitoring System for Parkinson's Disease.** *Research square*  
Hoffman, S. L., Schmiedmayer, P., Gala, A. S., Wilkins, K. B., Parisi, L., Karjagi, S., Negi, A. S., Revlock, S., Coriz, C., Revlock, J., Ravi, V., Bronte-Stewart, H.  
2024
- **Utility of smart watches for identifying arrhythmias in children.** *Communications medicine*

Zahedivash, A., Chubb, H., Giacone, H., Boramanand, N. K., Dubin, A. M., Trela, A., Lencioni, E., Motonaga, K. S., Goodyer, W., Navarre, B., Ravi, V., Schmiedmayer, P., Bikia, et al  
2023; 3 (1): 167

- **CardinalKit: open-source standards-based, interoperable mobile development platform to help translate the promise of digital health.** *JAMIA open*

Aalami, O., Hittle, M., Ravi, V., Griffin, A., Schmiedmayer, P., Shenoy, V., Gutierrez, S., Venook, R.  
2023; 6 (3): ooad044

- **Reducing the Impact of Breaking Changes to Web Service Clients During Web API Evolution**

Schmiedmayer, P., Bauer, A., Bruegge, B., IEEE  
IEEE COMPUTER SOC.2023: 1-11

- **Global Software Engineering in a Global Classroom**

Schmiedmayer, P., Chatley, R., Bernius, J., Krusche, S., Chaika, K., Krinkin, K., Bruegge, B., IEEE Comp Soc  
IEEE COMPUTER SOC.2022: 113-121

- **Transitioning to a Large-Scale Distributed Programming Course**

Schmiedmayer, P., Reimer, L., Jovanovic, M., Henze, D., Jonas, S.  
edited by Daun, M., Hochmuller, E., Krusche, S., Brugge, B., Tenbergen, B.  
IEEE.2020: 256-261