Dr. Nitish Patkar

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Experienced Research Associate with a strong background in requirements engineering, digital transformation, and UX design. I am passionate about creating products that stand the test of time through ethical and sustainable design practices. My expertise spans across managing industry collaborations, guiding teams through agile methodologies, and instructing at the university level. I am eager to contribute to innovative projects within a multi-cultural team, where the human aspect of technology is prioritized.

Education

Ph.D.
2018 - 2022
University of Bern, Switzerland

M.Sc.
2014 - 2018
University of Paderborn, Germany

B.E.
2009 - 2012
University of Mumbai

Skills

- Requirements engineering
- Digital sustainability
- UX
- Innovation management

- German (business fluent),
- English (business fluent),
- Hindi (native),
- Marathi (native)

- Javascript, typescript, Python, Smalltalk
- Angular, React, Django

Activities

- Member of the special interest group on digital sustainability at international requirements engineering board (IREB)
- Programm committee member of several international conferences like REFSQ and RE, and ICT4S
- Reviewer of several international scientific journals like SoSci, RE, IST, and EMSE
- Local chair of XP2025 conference

Career summary

Research Associate
March 2022 – present
University of Applied Sciences and Arts North-western Switzerland (FHNW)

- Successfully led multiple industry collaborations, overseeing projects from problem identification to solution validation.
- Acted as an Agile Coach for Industry Projects (Semester 3 & 4 total 2 teams) and Team Coach for Internal Projects (Semester 1 total 1 team) with a focus on the Rational Unified Process (RUP).
- Co-instructed Bachelor's level courses in Requirements Engineering and contributed to the CAS program in Digitalization and Sustainability.

Research Assistant
February 2018 – February 2022
University of Bern, Switzerland

- Led the Software Engineering Project for four years, mentoring 50-60 students annually through requirements specification, prototyping, implementation, and testing phases.
- Independently instructed the Seminar in Software Engineering (BSc/MSc), where I guided more than five students in exploring research trends and developing advanced, prototypical solutions.

Web Developer
2017 - 2018
ActiDo GmbH, Paderborn, Germany

- Developed a proof-of-concept web application using React, translating provided designs into functional and responsive front-end code with HTML, CSS, and React.

Research Assistant
2016 – 2018
University of Paderborn, Germany

- Collaborated with clients from Volksbank and the university sports department to gather requirements for a sports application.
- Developed a single-page application using Angular and Django Rest Framework, providing a functional prototype for the employees at Volksbank.

Systems Engineer
2012 - 2014
Infosys Ltd., India

- Contributed to a team working on product lifecycle management (PLM) platforms, including Windchill.
- Played a key role in developing a web application for Cox Communications, a US-based client.

Innovation projects

Yappi

In this project, we explored the challenge of improving productivity in agile software development teams without compromising developers' well-being. The proposed solution, "yappi," is an innovative software that combines self-reporting with AI-driven analysis to enhance both productivity and satisfaction within teams. By integrating quantitative metrics like GitHub contributions with happiness data, yappi aims to provide a comprehensive understanding of team dynamics. The minimum viable product (MVP) developed in this work allows teams to track and improve their workflows based on these insights.

REQify

In this project, we explored how generative AI can support Requirements Engineers (REs) in remote workshops by enhancing the efficiency and quality of requirements elicitation, analysis, and negotiation processes. The authors developed "REQify," a tool that integrates AI to assist REs during meetings by transcribing discussions, identifying contradictions, and helping to articulate user stories. The study demonstrates that AI can significantly reduce the time required for post-meeting documentation while improving the accuracy and completeness of requirements gathered during the session. This integration of AI fosters a collaborative synergy between humans and technology in software development processes.

Olanga Marketplace

In this project, we addressed the operational challenges faced by Olanga AG, a company focused on reducing food waste by connecting producers and consumers of individually grown fruits and vegetables. With the increasing workload in the back office, the project aimed to develop and refine the "Olanga Admin-Tool," a web application designed to streamline customer management and automate administrative tasks. The project involved setting up a productive environment, implementing a CI/CD pipeline, integrating Docker containers, and enhancing user experience through usability tests.

EquiApp

In this project, we focused on the digital transformation of the racehorse industry, which traditionally relies on subjective assessments and analog data. To address this, we developed "EquiApp," a mobile application designed to provide real-time, AI-driven analyses of horse data, making it easier for traders to make informed decisions on the go. The app enhances the user experience by offering customizable horse profiles and seamless data integration. Although still a minimum viable product, EquiApp shows great potential to modernize and streamline the racehorse trading process.

CEEX

The CEEX projects focused on enhancing a platform that facilitates the trading of locally produced clean energy. The implemented features support CEEX's goal of enabling community-driven energy markets for a more sustainable future. For instance, made significant advancements in integrating energy data into the platform and developing a feedback library. The energy data integration involved creating a system to dynamically incorporate local energy data, allowing users to view and trade energy in real-time. Additionally, a feedback library was implemented to collect and analyze user interactions, enabling continuous improvements to the platform's features based on real user feedback.

Watersense

The project "Watersense" developed by Artha focuses on revolutionizing the water treatment industry by enabling real-time, remote analysis of water quality data, which was previously only accessible locally. The implementation includes an advanced UV-spectrometer system that automatically uploads water quality data to a cloud platform, where it can be analyzed through a web application featuring customizable dashboards and visualizations. The project also evaluated and selected the optimal cloud hosting platform based on criteria like cost, maintenance, and scalability.

Research projects

Sustainable and usable LLM chatbot

Accepted at MuC 2024, our paper investigates the usability and user experience of generative AI tools like ChatGPT, with a focus on prompt management. Through an empirical survey of 61 users, we identified challenges in organizing and managing prompts. Our study highlights the need for advanced search functionalities, labeling, and innovative interface designs to enhance efficiency. Importantly, we emphasize the sustainability aspect, as efficient prompt management can significantly reduce the environmental impact of AI technologies. By guiding the development of more user-friendly and sustainable genAI tools, we aim to promote eco-friendly practices in the rapidly growing field of AI.

Data-driven persona management

Submitted for SNSF BRIDGE Proof of Concept funding, our paper introduces a data-driven approach to automate the creation, validation, and evolution of personas. By leveraging user feedback and monitoring data, we aim to streamline the persona development process, making it more efficient and accurate. Our research highlights the importance of continuously updating personas to reflect actual user behaviors and needs, thus enhancing the relevance and impact of software design. This approach not only improves user experience but also promotes sustainable practices by reducing redundant development efforts.

Data-driven implementation of features

This work-in-progress project aims to develop a data-driven method to accurately estimate the human and time resources required for implementing new features in software projects. By analyzing historical data from feature branches and issues labeled as 'feature,' we seek to answer high-level questions regarding the roles, skills, and project management aspects involved in feature implementation. This approach will provide empirical evidence to improve resource estimation, train AI models for better predictions, and inform other engineering disciplines such as product lines. Ultimately, our goal is to enhance the efficiency and accuracy of feature development in software projects.