Soaibuzzaman

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EXPERIENCE

- **Bauhaus University Weimar [⊕]**   *Oct 2022 - Present*
  Research Associate/PhD Candidate   Weimar, Germany
  ◦ Provided graduate teaching assistance for *Formal Methods for Software Engineering* and *Generative Software Engineering* courses
  ◦ Mentored student projects, including *Software Engineering for Autonomous Vehicles*
  ◦ Conducted research in formal methods and specification languages
  ◦ Maintained servers and performed system administration tasks

- **Chemnitz University of Technology [⊕]**   *Apr 2022 - Aug 2022*
  Research Assistant   Chemnitz, Germany
  ◦ Built scalable object detection application on resource-constrained edge devices
  ◦ Designed garage for Unmanned Aircraft Systems

- **Fraunhofer IWU [⊕]**   *Jul 2020 - Mar 2022*
  Research Assistant   Chemnitz, Germany
  ◦ Developed Augmented Reality application using HoloLens 2
  ◦ Developed Machine Tool Automation using Kotlin and BPMN

EDUCATION

- **Chemnitz University of Technology**   *Oct 2019 - Sep 2022*
  Master of Science: Automotive Software Engineering   Chemnitz, Germany
  ◦ Thesis: Insulator Detection Based on a Single-Stage Detector

- **American International University – Bangladesh**   *Sep 2014 - Dec 2018*
  Bachelor of Science: Computer Science & Engineering   Dhaka, Bangladesh
  ◦ Thesis: Attention-Based English to Bangla Machine Translation Using Sequence-to-Sequence Learning with Neural Networks

PUBLICATIONS

- **Soaibuzzaman**, J.O. Ringert. On Writing SMT-LIB Scripts: Metrics and a new Dataset. International Workshop on Satisfiability Modulo Theories. SMT 2025. CEUR, pp. 91–102 (2025).

- **Soaibuzzaman**, S. Kalantari, J.O. Ringert. On Writing Alloy Models: Metrics and a new Dataset. Rigorous State-Based Methods. ABZ 2025. LNCS, vol 15728. Springer (2025). DOI: 10.1007/978-3-031-94533-5_5

- **Soaibuzzaman**, J.O. Ringert. Introducing GitHub Classroom into a Formal Methods Module. Formal Methods Teaching. FMTea 2024. LNCS, vol 14939. Springer (2024). DOI: 10.1007/978-3-031-71379-8_2

- **Soaibuzzaman**. Towards Comparing Learned Classifiers. Doctoral Symposium. FM 2024.

- M. Salim Harras, **Soaibuzzaman**, S. Saleh, and W. Hardt. Exploring SSD Detector for Power Line Insulator Detection on Edge Platform. Embedded Selforganising Systems, vol. 10, no. 5, pp. 13–17, Nov. 2023. DOI: 10.14464/ess.v10i5.603

- B. Battseren, M. Harras and **Soaibuzzaman**. Deep-Learning-Based Insulator Detector for Edge Computing Platforms. International Symposium on Computer Science, Computer Engineering and Educational Technology (ISCSET-2021), Lauta, Germany, 2021, pp. 21-28.

- S. Ahmed, **Soaibuzzaman**, S. Rahman, and M. Saiedur Rahaman. A Blockchain-based Architecture for Integrated Smart Parking Systems. PerAwareCity'19 – 4th IEEE International Workshop on Pervasive Context-Aware Smart Cities and Intelligent Transport Systems (PerAwareCity'19), Kyoto, Japan, Mar. 2019. DOI: 10.1109/PERCOMW.2019.8730772

PROJECTS

- **FM Playground** *Sep 2022 - Present*
  An online platform that allows users to run formal methods tools in the browser [⊕] [○]
  ◦ Currently supports Limboole, Z3, Alloy, nuXmv, Spectra
  ◦ In browser language support (in progress)

- **VS Code Extensions: [For Limboole and Z3]** *Sep 2024*
  Visual Studio Code extensions for Limboole & Z3 Solver [⊞]
  ◦ Language support for Limboole
  ◦ Syntax highlighting for SMT-LIB2 files

- **TUC Share** *2021*
  Content sharing application with distributed block list services [○]

- **Seq2seq-E2B** *2018*
  An attention-based English-to-Bangla machine translation model using sequence-to-sequence learning with neural networks [○]

SKILLS

- **Formal Methods:** SMT, Alloy, SMV, Spectra
- **Programming Languages:** Python, C/C++, Java, Typescript
- **Database Systems:** PostgreSQL, PL/PGSQL, MongoDB
- **Data Science & Machine Learning:** TensorFlow, Keras, scilit-learn, ONNX, Hugging Face
- **DevOps & Version Control:** Git, Docker, CI/CD, Kubernetes
- **Libraries & Frameworks:** OpenCV, OpenGL, OPC-UA, NodeJS, React, Flask, FastAPI, Spring Boot
- **Specialized Area:** Formal Specification, Software Synthesis, Model Driven Development
- **Other Tools & Technologies:** ROS, Arduino, System Administration

TALKS & WORKSHOPS

- **Talk on "Analyses of Evolution in Specifications"** *June 2025*
  on 2nd International Summer School on Formal Specifications and Analysis for Software Engineers (SPECS) at CMU, USA [⊕]

VOLUNTEER & PROFESSIONAL SERVICE

- **Artefact Evaluation Committee** *Apr 2025*
  SLE 2025 [⊕]

- **Artefact Evaluation Committee** *Mar 2023*
  FM 2023 [⊕]

HONORS AND AWARDS

- **Morgan Deters Travel Award** *2025*
  23rd International Workshop on Satisfiability Modulo Theories [⊕]

- **Runners up in Idea Prototyping** *2017*
  AIUB CS Fest

- **26th in Divisional Science Olympiad** *2013*
  Bangladesh Academy of Sciences

- **16th in National Math Olympiad** *2013*
  Bangladesh Mathematical Olympiad

LANGUAGES

English: Professional Proficiency
German: Elementary Proficiency
Bengali: Native

References

- **Prof. Dr. Jan Oliver Ringert**
  Professor (Software Engineering)
  Program Director (Digital Engineering)
  Faculty of Media
  Bauhaus University Weimar
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