CSCE Dept. Lab. Introduction (Academic Year 2023)

Lab. Name	Washizaki lab. - Reliable Software Engineering (63-5F-0503, 0523)
	e-mail: washizaki@waseda.jp http://www.washi.cs.waseda.ac.jp @Hiro_Washi
	Please visit to our laboratory after the lab. assignment is completed.

Research Areas: Smart Systems and Software Engineering for Business and Society

Big challenge with industry and international collaborators

- Targeting actual industrial code such as program embedded in KOMATSU loading shovels and FUJITSU smartphones
- Contributing to actual services and businesses such as Yahoo Japan crowd sourcing service

State-of-the-art AI&IoT and software engineering research

- Cooperation between developers and AI such as Program Repair by Machine Learning
- Research projects based on various platforms including Cloud and IoT such as cloud security and privacy metamodel

Excellent environment

- Get hired as Research Support Staffs
- Master course students staying in Canada
- International conference visits

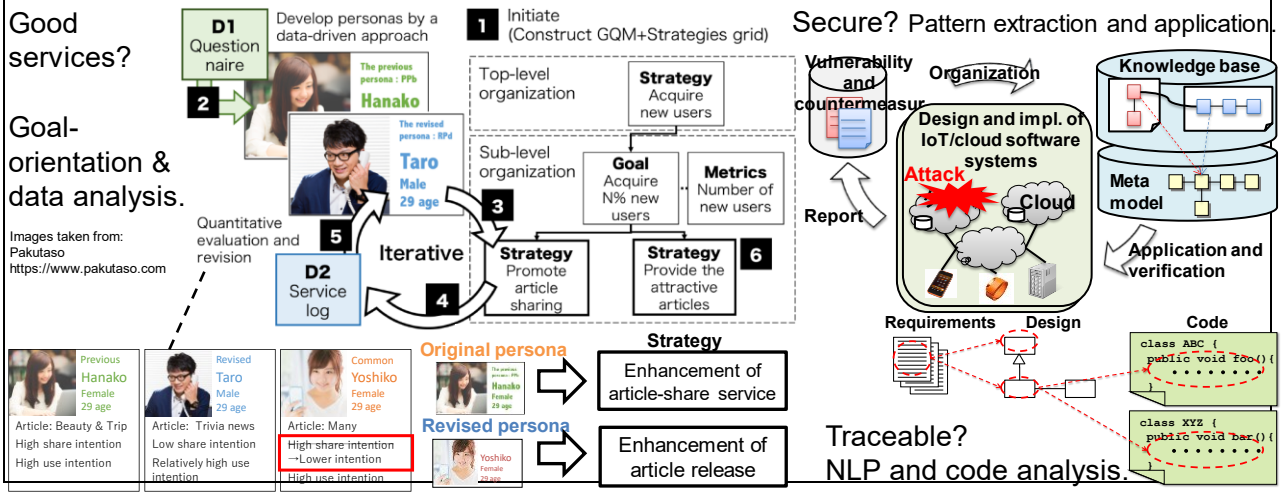
Good careers after graduation

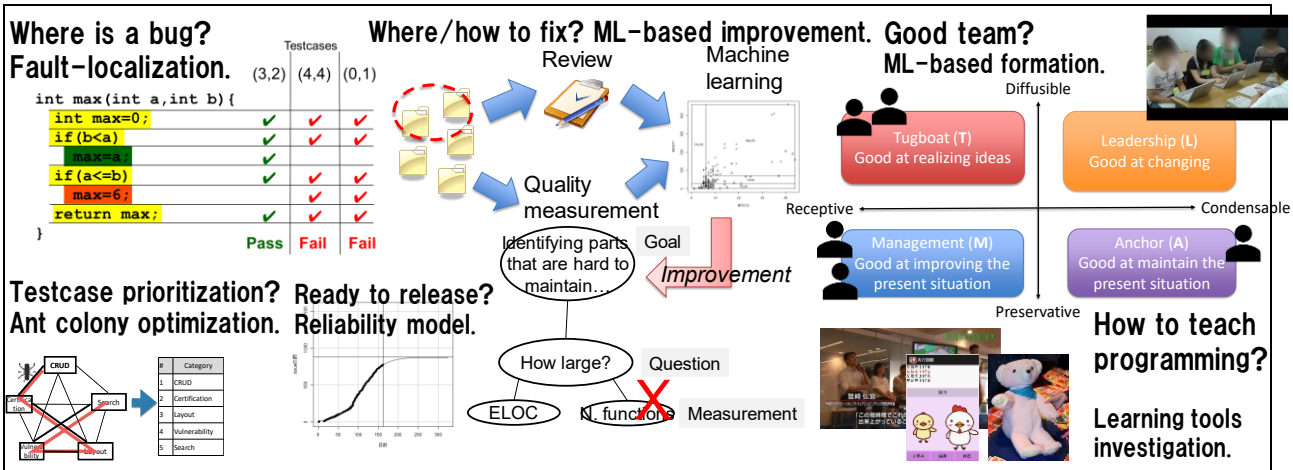
- Job offers dedicated to lab graduates
- Practical research topics useful for the future career

Research Topics

We are conducting "actionable" researches with 10+ industrial and academic partners in the field of systems and software engineering. Research topics include (a) new software engineering with AI and IoT, (b) alignment of business goals, strategies and data, (c) software design abd reuse, (d) software quality management, and (e) empirical studies on agile processes and programming education. Major projects funded by government and industry include:

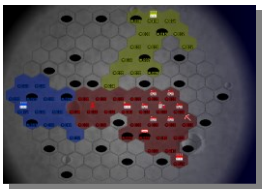
- **Machine Learning Software Engineering** (funded by JST and JSPS): Requirements engineering, patterns and development platforms for ML. **Graduate students can visit Canada for joint research with Concordia U. and Polytech Montreal.**
- **Data-Driven Software Maintenance & Evolution augmented by Machine Learning and Natural Language Processing** (funded by JSPS KAKENHI: Fund for the promotion of Joint International Research): NLP and ML for extension, modification and program repair
- **Goal-oriented Quantitative Measurement and Management Research** (supported by industry): Alignment of organizational goals, strategies and requirements
- **Cloud and IoT Security and Privacy Metamodel** (supported by industry): Developing metamodel for organizing knowledge of security and privacy
- **G7 Programming Learning Summit and ICT Club** (originally funded by MIC): Quantitative and Qualitative Study Guide of Programming for kids

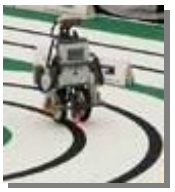




Lab. Members: 1 Professor, 1 Guest Professor, 1 Guest Associate Professor, 3 Doctor Students, 10+ Master Students incl. international students

Lab. Meetings: There are weekly lab meetings together with Fukazawa lab. and weekly group meetings. Moreover, students often form teams to conduct projects such as participation in business planning contest and software development hackathon.





Events: [Apr] Welcome Party, [Aug-Sep] Summer Camp incl. Thesis Intermediate Presentation, [Dec-Jan] Year-end and New Year's party, [Feb] Thesis Defense, [Mar] Farewell Party

Open House: Hybrid, Mar 20th & 22nd 10:00-17:00, 23rd 10:00-13:00 (TBD, See Web site)

Job Opportunity and Overseas Visit:

Since most of our projects are funded, **students are basically eligible to get hired as Research Support Staffs** in the laboratory by conducting research in the project room. Graduate students can **visit Canada for joint research with Concordia U. and Polytech Montreal** in the area of Machine Learning and Software Engineering.

Vision 2023

Having the vision **"Smart systems and software engineering for business and society by connecting AI, IoT and software engineering"**, we push forward with research on novel and actionable systems and software engineering methods to contribute to software and systems engineering industry and academia in collaboration with 10+ local and global partners including **Fujitsu, FCNT, Hitachi, Komatsu, NEC, e-Seikatsu, GAIO, Digital Hearts, Concordia University, Polytechnique de Montreal and Florida Atlantic University**.

As the **IEEE Computer Society 1st Vice President**, I will lead professional activities in terms of bodies of knowledge, education and training and business developments in relation to the lab activities and achievements.

Like previous years, we expect many new students coming from various countries. Our team is growing and having more diversity in national origins, backgrounds and mindsets. Such diversity contributes to our team in various aspects such as creativity to advance the above-mentioned projects and professional contributions. **We welcome your joining of our team!**

Hironori Washizaki