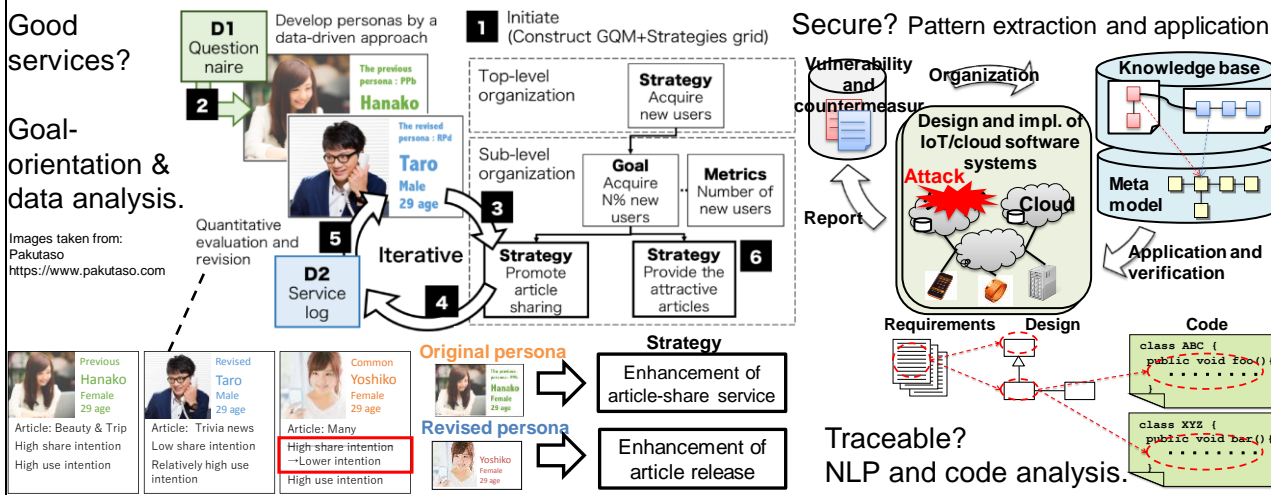| **Lab. Name**	Washizaki lab. - Reliable Software Engineering (63-5F-03 / 26)
	e-mail: washizaki@waseda.jp http://www.washi.cs.waseda.ac.jp @Hiro_Washi
	Please visit to our laboratory after the lab. assignment is completed.

Research Areas: Smart Systems and Software Engineering for 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 software and systems research
- Research projects based on various platforms including Cloud and IoT such as cloud security and privacy metamodel
- Application of Artificial Intelligence such as design pattern detection by Machine Learning

Team with Fukazawa&Honiden lab.
- Huge variety of research topics and broad network of alumni
- Students from various countries including China, Myanmar and India

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) alignment of organizational goals, strategies, data and requirements, (b) software testing, fault-localization and formal verification, (c) software quality measurement and improvement, and (d) empirical studies on practices, patterns, agile processes and programming education. Especially, we are conducting the following 5 projects together with 7+ industrial funded projects with industrial partners.

- Machine Learning for Software Engineering Data Analysis (supported by industries): ML for software planning and requirements, software architecture, bug reports and quality

- GQM-RG: Goal-oriented Quantitative Measurement and Management Research (supported by industries): alignment of organizational goals, strategies and requirements

- TraceANY (funded by JSPS KAKENHI: Grants-in-Aid for Scientific Research (B)): Tracing any software artifacts at any abstraction levels based on common metamodels

- CSPM: Cloud and IoT Security and Privacy Metamodel (funded by SCAT): Developing metamodel for organizing knowledge of security and privacy

- G7 Programming Learning Summit and ICT Club (funded by MIC): Quantitative and Qualitative Study Guide of Programming for kids

Good services?

Goal-orientation & data analysis.

Images taken from:
Pakutaso
https://www.pakutaso.com

Secure? Pattern extraction and application.

Traceable? NLP and code analysis.

Where is a bug? Fault-localization.

Where/how to fix? ML-based improvement.

Good team? ML-based formation.

Testcase prioritization? Ant colony optimization.

Ready to release? Reliability model.

How to teach programming? Learning tools investigation.

Tugboat (T) Good at realizing ideas | Leadership (L) Good at changing | Management (M) Good at improving the present situation | Anchor (A) Good at maintain the present situation

Lab. Members: 1 Professor, 1 Secretary, 3 Lecturer & Research Associates, 1 Doctor Student, 12 Master Students incl. 4 from China, India, Indonesia and Myanmar

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 robotic software design contest and developing AI programming contest platform.
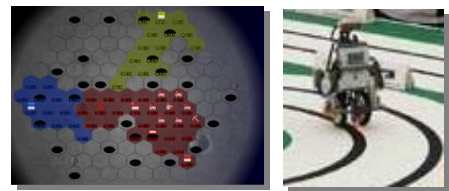
Events: [Apr] Welcome Party, [Aug-Sep] Summer Camp incl. Thesis Intermediate Presentation, [Dec-Jan] Year-end and New Year's party, [Feb] Thesis Defense, [Mar] Farewell Party

Open House (TBD): Mar 23rd 15:00-18:30, Mar 25th & 27th 10:00-18:00

Vision 2019

  Having the vision **"smart systems and software engineering with special focus on actionable practices supported by theory and data"**, 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, Hitachi, Komatsu, NEC, Toshiba, e-Seikatsu, GAIO, Toshiba, Polytechnique de Montreal, Florida Atlantic University, and Fraunhofer IESE**.

  We aim to publish impactful research papers at better places: at least 7 journal papers (incl. 4+ international) and 20 international conference papers (3+ at CORE Rank A/A* and 10+ at Rank B/C). Many of our research achievements in the form of methods, practices and tools shall be continuously used and produce actual values through our local and global partners.

  We contribute to organizing **IPSJ SamurAI Coding** 2018-19 (AI Game Programming Contest), IPSJ National Convention, **IEEE SISA/COMPSAC** 2019 (Symposium on IoT Systems and Applications / Conference on Computers, Software and Applications) and **APSEC** 2019 (Software Engineering Conference). These events give us good opportunities to contribute to the outer world and expand our network.

  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