



School of Computer Science
Science Centre 303
Level 4, Building 303
38 Princes Street
Auckland, New Zealand
T +64 9 373 7453
E office@cs.auckland.ac.nz
W www.cs.auckland.ac.nz

The University of Auckland
Private Bag 92019
Auckland 1142
New Zealand

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PARTICIPANT INFORMATION SHEET

Requirements Technical Debt Quantification

Name of Principal Investigator/Supervisor (PI): Assoc. Prof. Kelly Blincoe
Name of Co-investigator(s): Assoc. Prof. Ewan Tempero, Dr. Yu-Cheng Tu, Professor Matthias Galster
PhD Researcher(s): Judith Perera
Research Assistant: Faith Culas

Researcher Introduction

We, Judith Perera, AP Kelly Blincoe, AP Ewan Tempero, Dr Yu-Cheng Tu, and Faith Culas from the School of Computer Science and the Department of Electrical, Computer and Software Engineering, University of Auckland, and Professor Matthias Galster from the Department of Computer Science and Software Engineering, College of Engineering, University of Canterbury, are an inter-disciplinary research team located in New Zealand.

We would like to invite you to take part in our **semi-structured interviews**. Before deciding to participate you need to understand the purpose of this study and how you will be involved as a participant. Please take time to read the following information carefully. Reach out to us if you need further clarifications (see contact details at the bottom) – these correspondences will not be associated with the interview responses.

Purpose of the study: Software Requirements are crucial in developing a software product. Software practitioners can make sub-optimal decisions (either intentionally or unintentionally) when dealing with software requirements while performing their tasks.

For example, requirements engineers or business systems analysts might not capture essential user needs or specify software requirements ambiguously during Requirements Engineering (RE) activities. Software architects may make sub-optimal design decisions with respect to satisfying the requirements when designing the software architecture. Software engineers and developers may

implement software features inadequately (partially or incorrectly) without satisfying all the requirements. **Requirements Technical Debt (RTD) captures the consequences of such decisions .**

Unless managed, RTD can cause a software project to deviate from customer expectations or take longer than expected to meet them, causing large cost overruns. Therefore, RTD must be reduced and managed. We hypothesize that quantifying (or measuring or estimating) RTD can help in the decision-making for managing RTD.

The goal of this series of **semi-structured interviews** is to have in-depth conversations with software practitioners to **understand their perceptions on quantifying RTD for software requirements in general and for software requirements concerning veracity**. *Veracity requirements are a specific type of requirements related to truth, trust, authenticity, provenance, integrity and demonstrability of data and human interactions in software and AI systems.*

Participant involvement

- You have been invited to take part in this study because you are a practitioner involved in requirements engineering (RE), software architecture design, or software implementation activities. You will answer interview questions based on your experience working in your role.
- If you choose to participate, you will attend an online meeting scheduled for 90 minutes, with the interview itself expected to take 60 minutes. The additional time is allocated to account for any potential technical issues or extended discussions.
- The interviews will be recorded and transcribed. The recording cannot be stopped since the interview transcript is necessary for data analysis. The transcript will be sent to you for review upon request.
- The interview will begin by inquiring about sub-optimal decisions made concerning requirements during requirements gathering, design, and implementation of software, and whether and **how the quantification of RTD could support decision-making for better managing RTD**.
- We will focus on **veracity requirements** in the second half of the interview to understand what concepts (e.g., costs, benefits, consequences) and metrics could be helpful for quantifying veracity-related RTD . We will present you with an illustrative example of veracity requirements prior to beginning this section.
- We will also inquire about **cultural veracity requirements**. If you're a New Zealander, we may gather your perceptions about how you perceive this in the New Zealand context.

Informed consent and right to withdraw

- **Participants will need to sign a consent form.**
- Participation in this research is entirely voluntary. All questions are optional, and you may choose not to answer them. You may choose to leave the interview at any time without giving a reason.
- You can request an opportunity to review the transcript by indicating it in the Consent Form sent to you with the invitation to participate in this study. If you request to review, we will send you the de-identified transcript, and you can edit or delete any information from the transcripts within a period of two weeks. Reviewed transcripts can be emailed to the PI (see

contact details at the bottom).

Minimization of harm

- There is no risk or harm to participants from this study. The contact information of the Research Team is provided below if you would like to ask questions or have any concerns before participating.

Confidentiality and anonymity

- Your personal identification information, such as your name, company name, email address, or IP address, will be de-identified from the interview responses immediately after transcribing the data.
- Your responses will be analyzed separately from your contact information to keep your identity confidential.
- However, some demographic data may be collected, but only related to your current role/ company, country of work, application domain, and your experience in your role. This is for researchers to interpret the findings. e.g., to understand what findings may be more relevant to New Zealand.

Data storage and management

- **We will record the interview.** Recordings are deleted as soon as the transcripts are produced and reviewed. Any personal data will be deleted from the transcripts immediately.
- The responses gathered during the interview will be strictly confidential and not disclosed or shared with external parties. The **data will be de-identified** (e.g., all personal identifiers, including your organization's name, will be deleted) immediately after transcribing and stored securely in the PhD researcher's university-approved storage for the duration of the study and will be accessible only to the research team.
- Upon completion of the research, electronic data will be permanently erased from the PhD researcher's university-approved storage. The data will be moved securely to the PI's university-approved storage and retained for six years to maintain the integrity of the research. After 6 years, the data will be securely erased from the PI's university-managed data storage.
- Study results may be shared through the PhD researcher's presentations, reports, scholarly articles, and thesis. These reports and publication(s) will not identify you as its source.
- **Access to consent forms** will be restricted to the research team. Consent forms will be stored separately from the research data and deleted after six years.

Applying for a summary of findings

- If you wish to receive a summary of findings or an invitation for a presentation or webinar, you can enter your email address in the consent form. We will not be able to trace you back to your interview responses using the details you provide in the consent form. Consent forms will be separated from the research data.

Funding and third-party involvement

- This research is funded by the New Zealand Ministry of Business, Innovation, and Employment via the Science for Technological Innovation (SfTI) National Science Challenge Program's

Veracity Technology Spearhead research project (<https://veracity.wgtn.ac.nz/>) hosted by Callaghan Innovation.

- The data will be shared with the Veracity Technology Spearhead main research project for reporting purposes.

Contact the research team

If you have any questions prior to participating, please feel free to contact us directly – these correspondences will not be associated with the interview responses.

PhD Researcher: Judith Perera jper120@aucklanduni.ac.nz

Principal Investigator: Assoc. Professor Kelly Blincoe k.blincoe@auckland.ac.nz

Co-Investigator: Assoc. Professor Ewan Tempero e.tempero@auckland.ac.nz

Co-Investigator: Dr. Yu-Cheng Tu yu-cheng.tu@auckland.ac.nz

Co-Investigator: Professor Matthias Galster matthias.galster@canterbury.ac.nz

Research Assistant: Faith Culas fcu804@aucklanduni.ac.nz

Head of Department

Professor Giovanni Russello, Science Centre 303 - Bldg 303, 38 Princes St, Auckland Central, Auckland, 1010, New Zealand.

email: g.russello@auckland.ac.nz

UAHPEC Chair

For any queries regarding ethical concerns you may contact the Chair, The University of Auckland Human Participants Ethics Committee, Office of Research Strategy and Integrity, The University of Auckland, Private Bag 92019, Auckland 1142. Telephone 09 373-7599 ext. 83711. Email:

humanethics@auckland.ac.nz.

Approved by the University of Auckland Human Participants Ethics Committee on 14/06/2024 for three years. Reference Number: UAHPEC27696.