Elina Annanperä

- Generally anything and everything to do with these domains:
  - Manufacturing industry setting
  - eHealth
  - Personal and work-related wellbeing
  - Change in organizations or society due to digitalization
  - Applied AI
  - Automation and Human-machine Interaction
- Topics can include:
  - How to use sensor data to develop new services or gain benefits
  - IoT applications
  - Digitalization and Digital Twins about humans
  - Gamification and mobile games
  - Co-design
  - Co-development
  - Innovation ecosystems
  - service design

Leena Arhippainen

- Qualitative user research (e.g. user tests, interviews, living labs studies, etc.),
- User experience related topics
- Digitalization of minority languages (e.g. applications, services, games, etc.)
- Game, VR, AR and MR studies from human perspectives
- Multidisciplinary studies
- Other topics: if you have your own topic in your mind, let’s discuss how you can work it as a great Master’s thesis.

Maëlick Claes

- Areas
  - Software Repository Mining
- Natural Language Processing
- Sentiment analysis
- Machine Learning, Data Analytics

**Potential topics**
- Plagiarism detection system for student programming assignment using clone detection
- Text classification of issue comments (e.g. code snippet, errors, stack traces, code review)
- Benchmark for text classification in R and/or Python
- DataOps for 20-MAD dataset
- ScienceOps and replication of empirical studies
- Code duplication management for R packages
- Call graph analysis of R packages
- Integration of sentiment analyzers in IDEs/text editors/messaging applications (similar to Grammarly pro)

**Raija Halonen**
- Research approach: qualitative, constructive, conceptual-theoretical
- ICT assisting/enabling/helping any kind of people who benefit or need it
- Health and social wealth supported by ICT in its different forms/ICT in personal health
- Games/gamification/serious games in different contexts
- People/individuals and their experiences of ICT
- Social media (in any context)
- Challenges in implementing ICT in organisations
- ICT & elderly / ICT & disabled / ICT & minorities
- Social dynamics in ICT projects
- (Suggest your own topic)

**Heidi Hartikainen**
- Social media and Web 2.0
  - Social networks, instant messaging, virtual worlds (gaming and social) – TikTok, Facebook, WhatsApp, Instagram, Youtube, WoW etc.
  - Collaborative content creation and curation (for example spotify, Wikipedia)
  - Digital literacy, fake news, the line between free speech and hate speech – Facebook Jail
  - Unsafe interactions in dating apps such as Tinder, Bumble, Hinge, OKCupid
- Adolescent online safety and Information security:
○ Threats related to: Content (e.g. spam, violence, porn), Contact (e.g., bullying, grooming, hate speech, sexting), Conduct (e.g. illegal file sharing, bullying others), or Computers (e.g. malware, phishing)
○ Online safety mediation: Social mediation by parents, teachers, Industry mediation (e.g. content screening, privacy policies), Policies and educational efforts (e.g. KiVa koulu, Better internet for Children)
○ Online safety technologies (e.g. parental control apps)
- FabLabs and Digital fabrication:
  ○ Empowerment of different marginalized user groups through digital fabrication
  ○ Critical making, making as a form of protest and activism

Henrik Hedberg
- Software Engineering, especially software development, architectures, platforms and various technologies
- Programming and Open Source Software, such as Linux
- Mostly Design Science Research (DSR) methodology
- Current special interest: construction of functional programming languages and their runtime environments, including functional data structures

Juha Iisakka
- I prefer to supervise topics that include
  ○ All sort of database issues (from relations to NoSQL).
  ○ Modelling is close to my heart.
  ○ Software inspections
- In addition I have supervised many different topics. If you like me, come to discuss.

Netta Iivari
- Qualitative research
- Children and technology
- Participatory design
- User-centered design
- Usability
- User experience
- Digital fabrication and Making
- Critical design, critical Making, critical studies on technology
- Cultural aspects, values, ethical aspects
- Community-based design
- User innovation
Minna Isomursu

- eHealth related topics
- Especially: design methods for eHealth (eg: personalization, motivation, digital health literacy), self-management solutions
- Service design and service science topics - applying service design and/or service science in specific contexts, examining digital nature of services in design
- Data spaces and use of digital data: new data-driven concepts, value creation from digital data, exploration of use of digital data for different purposes

Antti Juustila

- Software development and programming related topics in general
- Mobile and distributed software development (iOS, Android, wearables)
- Data structures and algorithms
- Software development process and tools, e.g. version control, unit testing
- Non-functional requirements and software architectures

Pasi Karppinen

- I supervise mostly qualitative studies in the context of eHealth (more specifically wellbeing and preventive care).
- I’m most familiar with the topics:
  - Behaviour change
  - Persuasive technology
  - Ethical issues.
- There are also new openings that we can discuss further:
  - Blockchain (design science research cases can be possible as well)
  - Wireless connectivity
    - Connectivity issues in rural areas Personalized preventive healthcare of the future.

Teemu Karvonen

- Topics on modern automotive software development e.g. software defined vehicles, connected and autonomous vehicles
- Smart mobility and transport, challenges, solutions and services
- DevOps and continuous delivery/deployment methods
- Cloud and 5G/6G edge continuum software infrastructure, software platforms and software architectures

Marianne Kinnula

- I supervise qualitative studies
• Digital technology design and use; all topics can be looked at either business or technology user/developer viewpoint
  ○ Ethical viewpoints
  ○ Artificial intelligence, robotics, machine-learning etc. from the viewpoints of users, ethical issues
  ○ Social sustainability in technology development and use
  ○ Games and gaming
  ○ Online communities
  ○ Technology-rich everyday life (viewpoint that interests you, any user group)
  ○ Fablabs, digital fabrication, making
  ○ Technology supporting active citizenship (children / young people / adults / elderly)
  ○ Creativity/ideation in new technology design
  ○ Designing technology for children / with children / by children (or all of those)
• Almost any software business related topics - propose a topic and we can then discuss how it fits our study program as a thesis topic
• Strategy
• Leadership

Olli Korhonen
• Research approach: qualitative
• Design and use of ICT in healthcare
• Personalization related topics. Personalization in the context of eHealth but also other contexts can be discussed
• Also, topics on the role of ICT in teacher tutoring and academic advising are interesting.

Jouni Lappalainen
• Teaching and learning to program - anything related to this, but specifically
  ○ Student experiences on teaching experiments
  ○ Student experiences on studying in IPS programme
  ○ Virtual Learning Environments and their use (in learning to program)
• Software tools and tool evaluations
• Software processes and process tools
• Anything software engineering / programming related. A “propeller-head”.
Jouni Markkula
- Software Engineering Education
- International Engineering Education
- Human Aspects in Software Engineering
- Organisationan Knowledge Management
- Decision Making
- Decision Making Theories and Applications
- Delphi, Prediction markets, Information markets
- Privacy and Trust
- Crowd Intelligence
- Research Methods
- Design Science Research

Tonja Molin-Juustila
- Mainly qualitative studies, constructive studies maybe
- Topics with activity theory as theoretical framework
- Participatory design and/or technologies supporting participation
- Drama in the context of digital technology design
- Multidisciplinary (human/user centered) design
- Digitalization in social care/work/services (e.g. daily ICT issues in (small) third sector organisations, digital support for mental health, divorce, etc.)
- IoT and/or new ways of enjoying digital technology (from the the user point of view)
- Project management and work in ICT field
- Children and technology

Mika Mäntylä
- Software Testing
- Software Repository Mining
- Natural Language Processing
- Machine Learning
- Deep Learning
- Log Analysis
- Technical Debt
- Human Factors (Time pressure, Psychological factors)
- Automatic content manipulation, modelling and optimization
- Crowdsourcing

Harri Oinas-Kukkonen
- Data analytics to understand user behaviors
• Artificial intelligence / machine learning for behavior change
• Gamification and serious games
• User behaviors
• Behavior change
• Persuasive design
• Social influence
• User experience
• Human-computer interaction
• Social web / media
• Humanized technologies
• Emerging technologies
• Medical / health informatics
• Health applications
• Sustainability / Green IT
• Open innovation
• Crowdsourcing
• Dark side of IT, incl. unintended consequences
• Historical research method as the research approach
• For further topics, anything that relates to my co-authored book "Humanizing the web: Change and social innovation" could be of interest.

Markku Oivo
• Management of software development
• Software development methods and processes
• Agile methods
• Lean software development
• Requirements engineering
• SW startups
• Automotive software
• Software measurement
• Empirical studies

Tero Päivärinta
• Software/Systems development practices
• Information / Knowledge management, Digital Twins
• Benefits Realization of IT investments
• Enterprise systems
• E-Government -related topics
• Ambidexterity of organizations / ecosystems while developing IT/IS services - e.g. related to digitalization / digital transformation
Information security-related organizational or software development practices
Design Science topics in general

Dorina Rajanen
General research interests: human-computer interaction, usability and user experience, accessibility, psychophysiological measurements in ICT, technology acceptance, visualization and visual analytics, sustainability and fighting climate change with ICT, safety culture in digital fabrication, business intelligence and business process modeling, software as a service, education and instructional design, AI and ethics, media research
Research methods: quantitative, qualitative, and design science
Specific topics:
Climate change communication and action: how ICT can contribute to these?
Sustainability topics in ICT and information systems: how to design and develop sustainable ICT, what means sustainable ICT, how ICT contribute to a more sustainable future
Business intelligence: data mining, text mining, data visualization, and gamification in business & education contexts (computational and/or application aspects), data analytics, visual analytics, business process modeling - any topics using or developing these methods in the business & education context
Media experience: study of attention to media contents and formal features (colors, shapes, etc.), emotional appraisal in media contexts (video, games, news reading, etc.)
User evaluation in business, media, and human-computer interaction contexts (theoretical and empirical studies)
User experience and usability: evaluation and practices, user-centered design in practice, accessibility
Psychophysiological research
Software as a service, cloud computing: theory and applications, development, adoption, recommendation, evaluation
Models of adoption and acceptance of technology (e.g., for wearable computing, smart homes, e- and m-health, mixed reality, AI, etc.)
Safety culture (e.g., in digital fabrication, adoption of safety culture in organizations, evaluating safety as part of usability evaluation, ergonomics)
Instructional design in online education
Research methodologies in ICT and information systems

Mikko Rajanen
Topics related to usability, human-computer interaction, games and gamification
Päivi Raulamo-Jurvanen
- Software Development
- Software Testing

Pertti Seppänen
- Software startups
- Work, roles and responsibilities in software startups
- Industrial software engineering broadly
  - Methods, practices
  - Software engineering processes, process improvements
  - Management and leadership
- Design Science Research -type topics
- Topics related to the teaching responsibilities
  - Requirements engineering
  - Software quality and testing
  - Software architectures
- Distributed and global software work in industrial environments

Arun Sojan
- IoT in automotive and industrial systems.
- Security in DevOps
- Cloud Systems
- Microservice architecture

Piiastiina Tikka
- My preferred supervision areas include (but are not limited to):
  - Persuasive technology
  - Behaviour change
  - User experience
  - Gamification
  - UX with VR
  - =>if it involves humans, I'll be interested
- Other topics too, come talk to me if you think we're a match.

Nirmaya Tripathi
- Startups and minimum viable product
- Software development in startups
- Software engineering in Cyber-physical systems, Digital Twin, Industry 4.0 and 5.0
- Software ecosystems
The role of software-intensive technologies in relation with United nations sustainable goals
Software engineering teaching and education
Systematic literature review and mapping studies

Burak Turhan
Pick any software development/ engineering challenge that interests you, develop your own solution, tool, or algorithm, and evaluate your proposal as your thesis work. More specific areas below.
Software Quality, Testing and Security
Artificial Intelligence and Machine Learning for Software Engineering (How can we use AI/ML to make SE better? Keywords: Search-based Software Engineering/Testing; Defect Prediction, Effort/Cost Estimation, Mining Software Repositories)
Software Engineering for Artificial Intelligence and Machine Learning (How can we use SE to make better AI/ML? e.g. Autonomous Driving, Testing AI Systems for correctness)
Practical applications of AI/ML and ethics, fairness, biases in AI/ML Software (e.g. Testing AI/ML systems for fairness)
Human Factors in Software Engineering (e.g. How does people’s cognitive biases affect software engineering? ; If/ How are human values incorporated in software?)
Empirical Software Engineering (Investigate and understand how software engineering practices and processes work, e.g. how effective is test-driven development or pair-programming, why/ why not? )
AI and ML for Digital Health
Open to discuss your ideas, too!

Karin Väyrynen
Important: I only supervise qualitative research such as interview-based case studies (no quantitative, so no survey studies etc)
Digital Transformation, e.g.
  ▪ Digital Transformation Strategy
  ▪ Digital transformation in the taxi industry
  ▪ Effect of Covid-19 on digital transformation (e.g., remote work, IT use, remote health services, etc.)
Effect of law and policies on development / adoption of technology
  ▪ E.g., new European AI Regulation proposal
Software Business - related topics
Business process management / modeling
A concrete topic suggestion: (systematic) literature review about the topic: To what extent is Artificial Intelligence already utilized in health care processes (e.g., are there any processes that are already fully controlled by AI, how have they been researched and what results have been achieved?)