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# Experiences and learnings from collaboration with Academia from SME point of view

HeAT, 30.9.2025

# About us

**Timo Erkkilä —** PhD in Bioinformatics (TUNI). Over the course of 20 years, I've had the privilege to advance research and application development in various industries such as healthcare, industries, e-commerce, and market research.

I am also CEO and co-founder of **Veracell Oy**, a consulting company from Tampere.

Veracell specialises in designing and developing tailored Data & AI solutions for the benefit of research and business.

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# How we, Veracell, can best support Academia?

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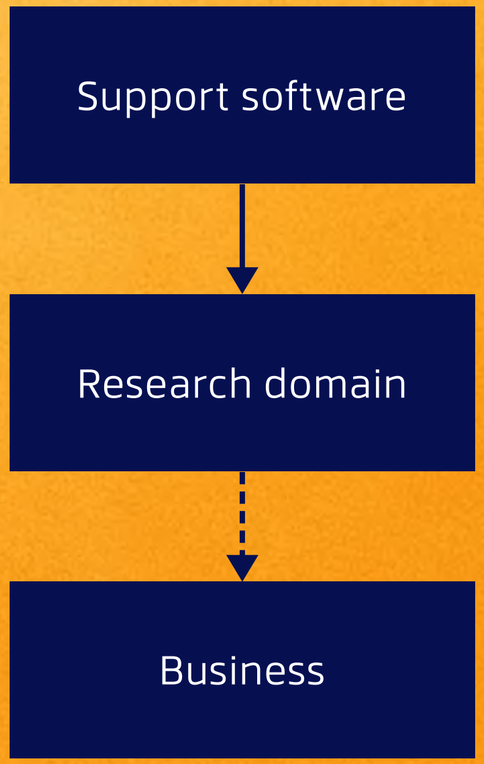
# We act as catalysts for speed and quality

While research is about going deep, we consider what (software) is needed to go deeper, faster.

This usually means we identify gaps in knowledge and tools, and find ways to fill those gaps.

The kinds of software we've written for Academia: data pre-processors, data platforms and integrations, predictive models, and applications.

And the faster research can be conducted, the faster business-viability can be assessed.

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# Example NLP collaborations with research groups

Tampere University

**Multi-omics analysis of prostate cancer care paths with information extracted from patient journals**

Despite EHRs for storing structured patient data, much of the vital data for research still lives in free-text patient journals.

Our NLP efforts to structure patient journals enabled mathematical modeling of care paths for the Computational Biology group, leveraging their expertise in genomics and prostate cancer.

JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

Tampere University

**Unlocking previously inaccessible insights from patient journals for calculating electronic frailty index**

A deep learning-based natural language processing model was employed to perform named entity recognition (NER) to identify falls, incontinence, loneliness, and mobility limitations from the free-text entries.

The performance of the NER models was evaluated by precision, recall and F1 scores, all of which yielded scores >0.80 across the health conditions.

ELSEVIER

Computational and Structural Biotechnology Journal

Volume 28, 2025, Pages 341-347

Research Article

## Identifying health conditions in older adults in textual health records using deep learning-based natural language processing

Jake Lin [a b], Anna Kuukka [a], Tomi Korpi [a], Anna Tirkkonen [c], Antti Kariluoto [d], Juho Kaijansinkko [a], Maija Satamo [a], Hanna Pajulammi [e], Markus J. Haapanen [b f g], Sergei Häyrynen [h], Eetu Pursiainen [h i], Daniel Ciovica [h], Mikaela B. von Bonsdorff [c g], Juulia Jylhävä [a b j]

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# What we learned in these projects?

While patient journals are a standard data asset in healthcare-related research, working with it may be time-consuming. This has been a long-standing issue.

Veracell has extensive experience working with NLP techniques, so taking some workload off of the research teams helped them focus more on the research hypotheses around diseases and physiological conditions, and treatments.

We created the solutions collaboratively with the research teams, which ensured the solutions fit into their processes.

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# CVDLINK — Federated Learning for cardiovascular diseases

**CVDLINK** is a visionary initiative under the Horizon Europe Program aimed at **transforming the management of cardiovascular diseases** (CVDs) across Europe.

**Veracell is one of the 19 consortium partners** developing federated learning for advancing predictive models for cardiovascular diseases. These models will be available via CVDLINK's Platform as a Service (PaaS).

**Veracell has assumed the role of "system integrator"**, helping in putting the pieces together into a functional whole, while also contributing to select areas such as data pre-processing for federated learning.

TRILATERAL RESEARCH
Ethical AI

TARTU ÜLIKOOL
UNIVERSITY OF TARTU
1632

SYNYO

ktu
kaunas university of technology
1922

INSTITUTUL DE CARDIOLOGIE
MINISTERUL SĂNĂTĂȚII

wellics
LIVING ANALYTICS

UNIVERSITATEA DE MEDICINĂ ȘI FARMACIE CAROL DAVILA

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Universität Hamburg
DER FORSCHUNG | DER LEHRE | DER BILDUNG

kineret
Israel health data lake

ΑΡΙΣΤΟΤΕΛΕΙΟ
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Hillel Yaffe Medical Center

# What's brewing in Tampere?

## P4 medicine

Tampere is building a P4 medicine (predictive, preventive, personalized, participatory) agenda led by Tampere University and Business Tampere.

We're actively participating in discussions and projects within P4 medicine.

## Organ-on-chips

Tampere has a nationally leading hub centered on organ-on-chip research, which unites biology and engineering.

Among other things, this technology has great potential to speed up phase 2 clinical trials for pharmaceutical research.

We're keenly following this line of research and identifying opportunities for collaboration.

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# Learnings

While research is fun, exciting, and valuable, it can oftentimes take great effort to conduct thoroughly.

The best we can do is assume a support role and build tools that help make cutting-edge research faster. We know how to build tools that work for academics.

Every research question is different, so the needed tools can vary wildly. It takes curiosity and understanding to identify what the research needs.

Without good communication between the parties, mutual understanding what needs to be done cannot be established.

Tampere is a city with thriving ecosystems around AI and healthcare, which helps an SME develop their business for benefitting research.

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# Thanks for your interest!

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