

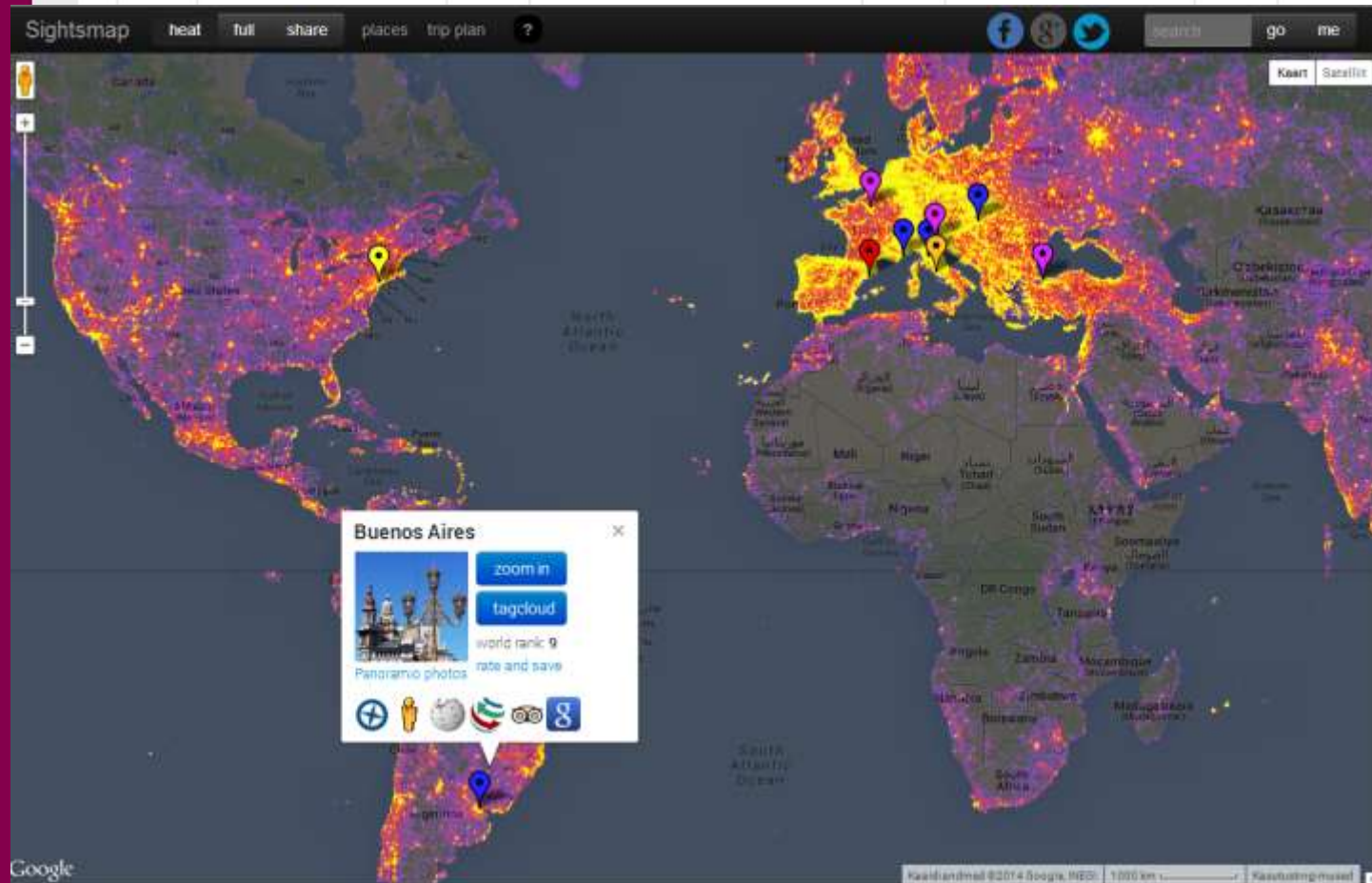


MSc Thesis topics for IVSM and IAPM curricula offered at the Dept. of CS @ TUT

2015/2016



Prof. Tanel Tammet: <http://sightsmap.com>





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- Evaluation of popularity estimates from different sources: (visual attractiveness, actual visitor counts, whether the source is well known). Analysis of relationships and comparison.
- Defining new data sources and implementing the data import to the database.
- Allowing users to enter data and integrating that intelligently with the underlying database.

Prof. Tanel Tammet: <http://whitedb.org>



WhiteDB

Home

Tutorial

Speed

C API

Python

Tools

Download

Install

Licence

Contact

Pure speed

WhiteDB is a lightweight NoSQL database library written in C, operating fully in main memory. There is no server process. Data is read and written directly from/to shared memory, no sockets are used between WhiteDB and the application program.

Tutorial

Speed

Download

Project goals

- speed
- portability
- simplicity and small footprint
- low memory usage
- easy to use in embedded systems
- graph database applications
- extended rdf database applications
- fast interprocess communication
- seamless integration with a wGandalf rule engine (work in progress)

Data storage

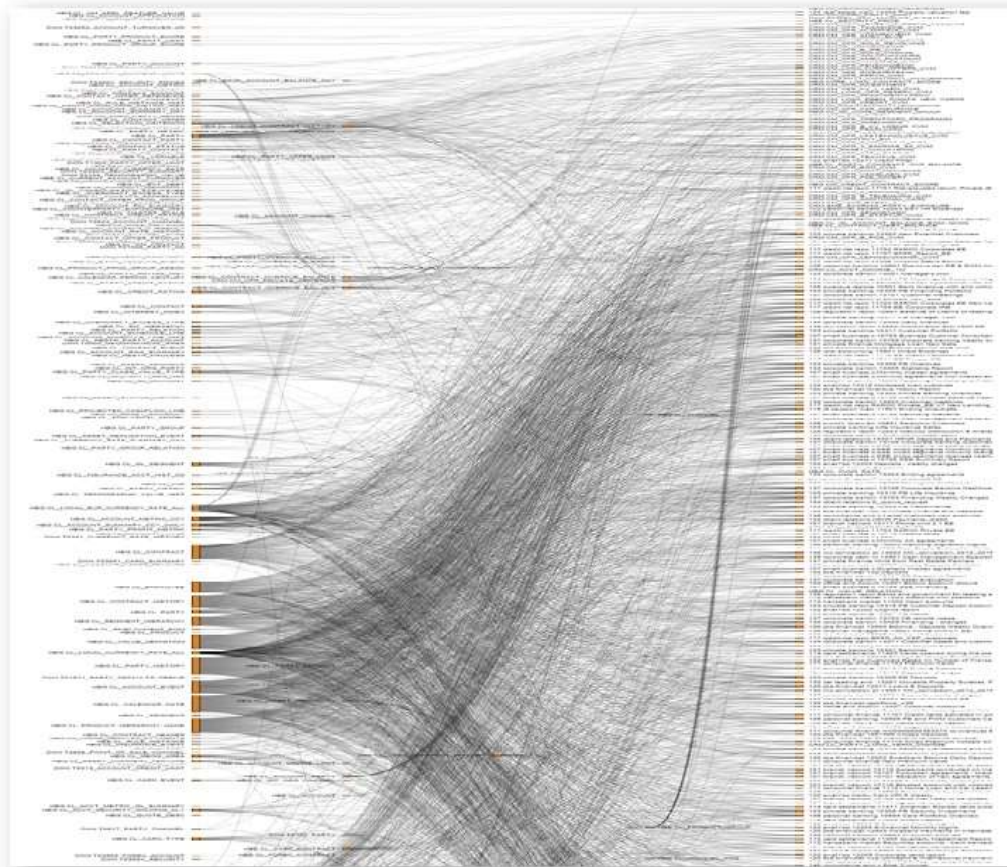
Data is kept in shared memory by default, making all the data accessible to separate processes.

Each database record is a tuple of N elements, encoded in WhiteDB-s simple compact format. You can store both conventional datatypes and direct pointers to records: the latter enables highly efficient traversal of complex data.

Supported features

- indexes (T-tree)
- persistence through logging and memory dumps
- concurrency through locking
- limited queries (conjunctive only)
- json, CSV and RDF support
- Linux and Windows
- Python bindings
- command line utility tools
- json REST tools

Prof. Tanel Tammet: <http://dlineage.com>



Prof. Jüri Vain (juri.vain@ttu.ee)

* Knowledge engineering:

Implementation of ontology manipulation operators.
CONSTRAINT SPECIFICATION, ONTOLOGY DESIGN,
LINKED DATA PUBLICATION

Environment for implementation: ROS (robotic OS)

* Human-machine dialogue systems:

Context sensitive unification of terms of
natural language

Applications: Dialogue systems for
robot Nao

Environment for implementation: ROS

* Test automation for web applications



Human motion analysis and gesture recognition

Sven Nõmm sven.nõmm@ttu.ee



Detection of human gestures and motion. Modelling of learning human motor functions. Mapping of human motor function performance and modelling of movement patterns.

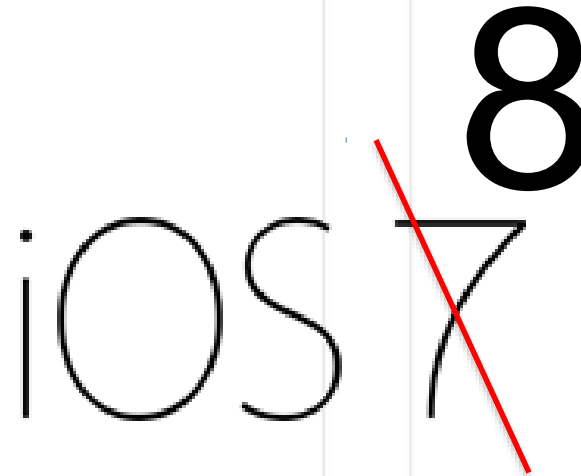
Research targets to model the changes in human motor functions caused by learning new motor activity, posttraumatic rehabilitation or neurologic diseases. sven.nomm@ttu.ee



- a) Fault detection system for Iver 2
- b) Vision based tracking and bathymetry for automated underwater vehicles (Juhan Ernits)

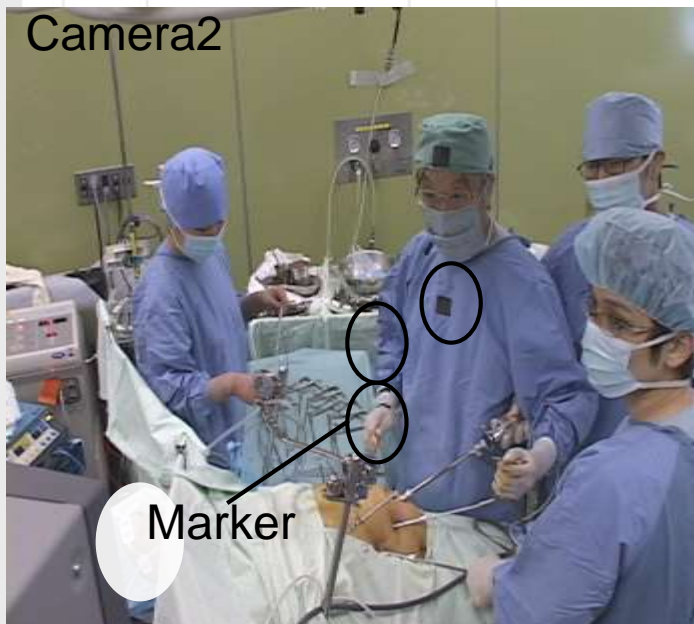


Model based testing for platform independent mobile apps (NModel + Xamarin) Juhan Ernits





Robotic scrub nurse (prof. Jüri Vain) (Joint work with Tokyo Denki University)



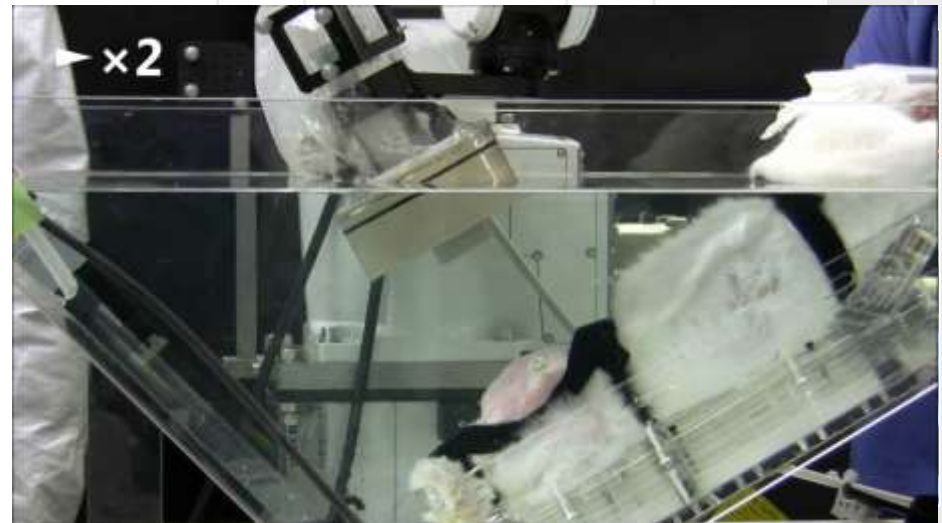
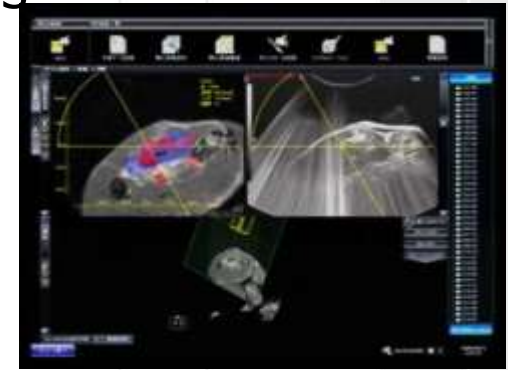
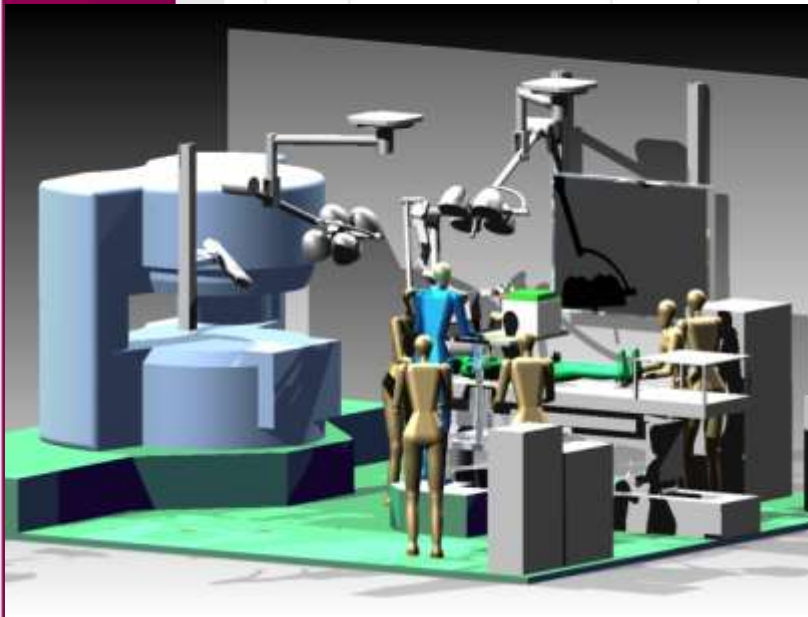
Design and implementation of
robot software components

Next generation of Operation Theatre SCOT (Smart Cyber Operating Theatre)



System for precision guided surgery/therapy

- Minimally invasive smart therapy
- Automatic “orchestration of devices”
- Reconfigurable device packaging



- Online safety monitoring
- Multi-agent action planning



- Functional reactive programming in Haskell (Wolfgang Jeltsch)
- Logic programming for AI systems (Evelin Halling, Gert Kanter)

and many more topics available



Some potential supervisors:

People (TUT Dept. of CS):
<http://cs.ttu.ee>

Prof. Jüri Vain
Prof. Tanel Tammet
Prof. Tarmo Uustalu

Endre Domiczi
Juhan Ernits
Evelin Halling
Jaagup Irve
Gert Kanter
Roger Kerse
Marko Kääramees
Maili Markvardt
Sven Nõmm
Jaan Penjam

People (Dept. of Informatics):
<http://www.ttu.ee/en/?id=50041>

If you would like to pursue a topic of your own interest, please approach a member of staff for supervisor recommendations.