



COMPUTATIONAL  
INTELLIGENCE  
GROUP

## COMPUTATIONAL INTELLIGENCE GROUP

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**Computational Intelligence Group** is university research group performing basic and applied research in the field of computational intelligence. Major research objectives are artificial neural networks, evolutionary algorithms and other nature inspired computational tools applied in broad research and industrial areas such as medicine, social and technical sciences. The group has 11 members; researchers/university employees and PhD students (as of April 2008).

### National Projects

Transdisciplinary research in the Area of  
Biomedical Engineering II  
Automatic Knowledge Extraction

### Past Conference Organized

International Conference on Artificial Neural Networks  
<http://www.icann2008.org>

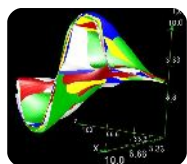
### Upcoming Event

Eurosim Congres 2010  
<http://www.eurosim.info>

### Partners

IBM Czech Republic, Voice Technologies & Systems, Seznam CZ, Charles University, 2<sup>nd</sup> Medical Faculty, Faculty for Human Studies, National Museum

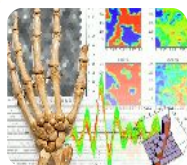
### Selected Projects



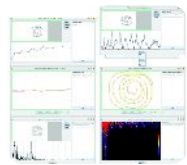
**GAME** is a data mining application based of **Groups of Adaptive Models Evolution**. It utilizes ensembles of models built inductively to discovery knowledge from large data sets. GAME features advanced visualization, feature ranking and non-linear modeling techniques. GAME has been open sourced in 2007.  
<http://www.sourceforge.net/>



**CIV Toolkit** is a C library providing collection of computational intelligence and voice processing algorithms such as neural networks, genetic algorithms, nature inspired optimization algorithms, hidden Markov models, etc. The library is primarily developed for the Cell Broadband Engine.  
<http://axon.felk.cvut.cz/civtoolkit/>



In the **Bone Age Modeling** project we focus on processing Anthropological data by means of several data mining methods. Methods are tuned and parameterized to give best possible performance on highly noisy data. The performance of methods is compared and the recommendation, how to process noisy and partially inconsistent data will be one of the final conclusions of this project.



Medical applications - **Parkinson Disease Diagnostics** project is to support diagnostic of patients with Parkinson disease (and other movement disorders). The project involves automatic recognition of hand-drawn spirals and measurement of the tremor. Through **Eye-movement Recognition** it has been shown that dyslexia disease could not be recognized from fixations of vision only.

### Team

Miroslav Skrbek (head), Miroslav Šnorek (founder), Pavel Kordík, Jan Koutník, Zdeněk Buk, Miroslav Čeppek, Jan Drchal, Rudolf Marek, Oleg Kovařík, Aleš Pilný, Tomáš Siegl

