

Maciej Kruk | Curriculum Vitae

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Experience

u2i LLC

Krakow, Poland/New York, USA

Senior Developer

Oct 2012–Nov 2013

Designing and developing a reporting system with accompanying web application and data analytics infrastructure for generating social TV measurement, analytics and audience engagement solutions.

Responsibilities:

- Following Agile methodology:
 - Scrum;
 - Test Driven Development;
 - Pair Programming;
 - Daily stand-ups;
 - Weekly company stand-ups;
- Working closely with the client:
 - Revisiting business goals;
 - Presenting designs to client's Principal Architect;
- Mentoring new employees;

Duties performed:

- Developed functionality for discovering cross-relations between TV and Movie data:
 - Prepared a script for analyzing the data using Amazon EMR and Apache Hive;
 - Created a dynamic platform for generating reports using Ruby on Rails, jQuery and Highcharts JS;
 - Prepared a dynamic XML and PDF generation functionality;
- Built a functionality for exporting selected tweets into clients' systems:
 - Wrote Node.js service based on Socket.IO and Redis Pub/Sub system to synchronize the state between users;
 - Built RESTful API for accessing the data programmatically;
- Prepared a number of custom data reports revolving around TV, movies, brands and advertisements:
 - Implemented DataSift demographic analytics integration;
 - Prepared custom demographics data report for Super Bowl XLVII from over 26 mln relevant tweets;
 - Prepared custom advertisements report for MTV VMA;
- Played vital role in creating the Nielsen Twitter TV Rating system:
 - Designed the tweet collection system to archive the full Twitter Firehose (1 GiB/min);
 - Designed the data processing pipeline
 - Implemented the collection system using Java, HBC, Kestrel, Finagle on top of AWS;
 - Created a Ruby on Rails application for orchestrating and monitoring Hive and Hadoop jobs;
 - Automated cluster configuration and monitoring using Chef, NewRelic, CloudWatch and Pacemaker;

Team received Nielsen's Outstanding Achievement Award in recognition of the commitment shown in delivery of the Nielsen Twitter TV Rating;

Fujitsu Laboratories Ltd.

Kawasaki, Japan

Algorithmic Researcher, Vulcanus in Japan Programme

Jan 2012–Aug 2012

Worked on projects involving combinatorial optimization, formal verification and high-frequency trading.

Duties performed:

- Researched Finite State Automata and Markov Models;
- Modelled a fallback system using PRISM and Verilog;
- Tested performance of multiple desktop sharing systems;
- Implemented a simple high-frequency trading solution:
 - Initial version using Python and Natural Language Toolkit
 - Final version using Java and Stanford Natural Language Processing library
- Implemented a combinatorial optimization solution for large grids;

ESISAR, Grenoble Institute of Technology*Software Developer, LLP ERASMUS programme*

Developed an application for water flow modelling.

- Duties performed:
 - Implemented 2D fluid simulation in C++ using Palabos library;
 - Researched Lattice-Boltzmann methods in 2D and 3D;
 - Implemented 2D and 3D model in Matlab;
 - Adapted theoretical model for irrigation networks simulation from 2D to 3D;
 - Developed 3D irrigation network simulation:
 - Implemented engine in C++
 - Implemented visualization in C++ using OpenGL
 - Implemented TCP/IP server to connect the visualization with the engine

Valence, France*July 2010–Sept 2010***Institute of Nuclear Physics PAN***Software Engineer*

Designed and developed a private cloud computing system.

- Duties performed:
 - Researched existing cloud management systems (Eucalyptus, OpenNebula);
 - Tested Eucalyptus and OpenNebula as standalone systems;
 - Researched virtualization technologies (Xen, VMware, KVM) and libraries (libvirt);
 - Built the system prototype on top of OpenNebula;
 - Built the backend using Python and Django on top of libvirt and KVM;
 - Built EC2 compatible API;

System currently manages 600 CPU cores and is used mainly for processing data from CERN's Large Hydron Collider.

Krakow, Poland*July 2009–Aug 2011***CERN - European Organization for Nuclear Research***Software Developer, Summer job*

Optimized and implemented regression and classification algorithms in Toolkit for Multivariate Data Analysis.

- Duties performed:
 - Optimized Probability Density Estimator - Range Search implementation
 - Developed Simulated Annealing minimization algorithm
 - Adapted classification methods to use for regression:
 - Probability Density Estimator Range Search
 - Function Discriminant Analysis
 - Support Vector Machine
 - Implemented Linear Discriminant regression and classification methods
- Technologies used:
 - C++ for development
 - SVN for version control
 - Doxygen for documentation

Geneva, Switzerland*Sept 2007, Feb 2008, Aug 2008***Institute of Nuclear Physics PAN***Software Developer, Summer job*

Prepared a tool for multidimensional event classification for ATHENA detector at CERN.

- Duties performed:
 - Learned about the tauRec package and Athena framework;
 - Constructed a multivariate analysis algorithm for tauRec using C++;

Krakow, Poland*June 2007–Sept 2007***M&I Doradztwo Inwestycyjne***Web Developer*

Designed, developed and maintained a company website.

- Technologies used:
 - HTML
 - CSS
 - PHP
 - Adobe Photoshop
 - Macromedia Flash

Krakow, Poland*July 2007–Oct 2007*

Education

AGH University of Science and Technology

Magister (Master of Science)

Computer Science

Specialization: Interactive Systems and Visualization Methods

Krakow, Poland

2011–2013

AGH University of Science and Technology

Inżynier (Engineer)

Computer Science

Krakow, Poland

2007–2011

Skills and competences

Advanced algorithms and data structures

C/C++ programming: STL, Boost, Doxygen, Visual Studio 2012

Java programming: JUnit, Javadoc, Eclipse

Other programming: Ruby, Python

Databases and messaging systems: MySQL, Redis, Kestrel

Data analytics: Apache Hive, Amazon Elastic MapReduce

DevOps: Opscode Chef, Amazon EC2, S3, RDS, IAM

Parallel computing: OpenMPI, CUDA

Virtualization: Xen, KVM, QEMU, libvirt

Web development: Ruby on Rails, CSS, HTML, SOAP, REST, XML, JSON

Environments: Vim, Emacs

Operating systems: Linux, OS X, Windows

Version control systems: Git, SVN

Agile: Agile methodology, Scrum, TDD, Pair programming

Team management: Redmine, Pivotal Tracker

Documents editing: L^AT_EX, Microsoft Office

Graphics software: Adobe Photoshop

Exposure

Programming: Matlab, Pascal, Erlang, Lisp, Icon, Assembly 8086, Perl, Verilog

Databases: CouchDB, Amazon Redshift

Data analytics: Apache Hadoop, Apache Pig

DevOps: Clusterlabs Pacemaker, Amazon Route 53, OpsWorks

Parallel computing: OpenCL, OpenMP

Web development: AJAX, Django, jQuery, Node.js

Trainings and courses

Scherer Leadership International

Leadership Development Intensive

Krakow, Poland

July 2013

Scherer Leadership International

Team development training

Krakow, Poland

Feb, April, June 2013

Udacity

CS373: Artificial Intelligence for Robotics

Highest distinction

Feb 2012

Udacity

CS387: Applied Cryptography and Encryption

Highest distinction

June 2012

Personal Achievements

ACM Central Europe Programming Contest <i>26th place</i>	Krakow, Poland <i>2012</i>
Google AI Challenge <i>105th place (out of 4600 contestants)</i>	<i>2010</i>
ACM Central Europe Programming Contest <i>40th place</i>	Prague, Czech Republic <i>2007</i>
Poznan Open 2006 – Team Programming Championship <i>1st place in junior classification, 7th place in open classification</i>	Poznan, Poland <i>2006</i>
XIII Polish Olympiad in Informatics <i>Finalist</i>	Sopot, Poland <i>2006</i>

Languages

Polish: Native

English: Fluent

Japanese: Intermediate

Japanese Language Proficiency Test N3, Dec 2012

Interests

Travel

Literature

Skiing

Technology

References

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Tom Clarke

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