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 advertisments 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
Valence, France

Software Developer, LLP ERASMUS programme
July 2010–Sept 2010

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

Institute of Nuclear Physics PAN
Krakow, Poland

Software Engineer
July 2009–Aug 2011

Designed and developed a private cloud computing system.

- Duties performed:
  - Researched existing cloud management systems (Eucalyptus, OpenNebula);
  - Tested Eucalyptus and OpenNebula as standalone systems;
  - Reasearched 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.

CERN - European Organization for Nuclear Research
Geneva, Switzerland

Software Developer, Summer job
Sept 2007, Feb 2008, Aug 2008

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 Discriminand regresion and classification methods
- Technologies used:
  - C++ for development
  - SVN for version control
  - Doxygen for documentation

Institute of Nuclear Physics PAN
Krakow, Poland

Software Developer, Summer job
June 2007–Sept 2007

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++;

M&I Doradztwo Inwestycyjne
Krakow, Poland

Web Developer
July 2007–Oct 2007

Designed, developed and maintained a company website.

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

Education

AGH University of Science and Technology   **Krakow, Poland**
Magister (Master of Science)   *2011–2013*
Computer Science
Specialization: Interactive Systems and Visualization Methods

AGH University of Science and Technology   **Krakow, Poland**
Inżynier (Engineer)   *2007–2011*
Computer Science

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: LaTeX, 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   **Krakow, Poland**
Leadership Development Intensive   *July 2013*

Scherer Leadership International   **Krakow, Poland**
Team development training   *Feb, April, June 2013*

Udacity
CS373: Artificial Intelligence for Robotics   *Feb 2012*
Highest distinction

Udacity
CS387: Applied Cryptography and Encryption   *June 2012*
Highest distinction

Naganuma School **Tokyo, Japan**
Japanese Language intensive course *Sept–Dec 2011*

Personal Achievements

ACM Central Europe Programming Contest **Krakow, Poland**
26th place *2012*

Google AI Challenge
105th place (out of 4600 contestants) *2010*

ACM Central Europe Programming Contest **Prague, Czech Republic**
40th place *2007*

Poznan Open 2006 – Team Programming Championship **Poznan, Poland**
1st place in junior classification, 7th place in open classification *2006*

XIII Polish Olympiad in Informatics **Sopot, Poland**
Finalist *2006*

Languages

Polish: Native

English: Fluent

Japanese: Intermediate *Japanese Language Proficiency Test N3, Dec 2012*

Interests

Travel

Literature

Skiing

Technology

References

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