Alexey Makurin

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Profile

IT expert with almost 20 years of experience, having gone the way from student-developer (delving into dozens of very different business areas, investigating and fixing problems in code sources as well in workflows and whole business processes)

... through developing of IT ecosystem for regional delivery network from scratch while still being a student;

... through establishing software development business (.Net);

... through team leading at one of the largest and most successful companies on outsource software development market in the world (participating in the wildest projects, like taking control over every bottle of alcohol from import/production to retail);

... through design and implementation of billing system from scratch for real-time video conference billing (on .Net, isn't it a crazy project?);

... through development of private communication ecosystem including independent encrypted messaging solutions (Clojure (Script), Core.Async, ReactJS), private mail servers, TOR mirrors, VPN gateways and Socks Proxy;

... through development of semantic search service with custom algorithm of information extraction based on formal grammars;

... through huge number of courses and research papers on robotics in general, control theory, computer vision, machine learning, autonomous navigation and power electronics in particular.

Professional Interests

Following are three main professional areas where I'm developing my skills and experience.

Robotics

Area of interest	Status	Current results
Autonomous navigation	An experience with sensor fusion and INS/GNSS development. An academic experience in autonomous car control.	- INS/GNSS, sensor fusion via ML and Kalman Filter over Lie Groups. - Autonomous car navigation with traffic lights detection; - Path planning in spars traffic; - Vehicle detection; Lane Detection; - Behavioral cloning applied to autonomous navigation.
Locomotion	Have got academic experience in mobility, locomotion, electrical engineering; Gathering production experience via hobby projects.	- 2D stand for stability analysis: see video
Swarm as autonomous navigation technique	Searching, studying open publications	NA

Machine Learning

Area of interest	Status	Current results
Deep learning	Have got academic and some production experience. Searching for opportunity to apply in real projects.	- Applying TCN to IMU data for movement pattern recognition and Kalman Filter parameters adaptation. - Machine learning powered SOLR re-ranking: here is talk of my colleague on this project;

		– Behavioral cloning applied to autonomous navigation; Traffic signs recognition.
Reinforcement learning and evolution algorithms	Have got some academic experience, waiting for chance to dig deeper.	NA

Web Development

This is what I've been doing for living at least last 15 years. There were a lot of projects with huge difference in size, complexity and my role on it: developer, developing team lead, system analyst, project manager. Most comfortable role is DTL. Most comfortable platform is Clojure(Script).

I'm interested in following areas for further skill development: Highload projects, DevOps automation, Blockchain integration.

Education

Year	Description
2018	Power Electronics Specialization, University of Colorado Boulder over Coursera
2017	Self Driving Car Engineer, Udacity Nanodegree Program
2017	Robotics specialization, University of Pennsylvania over Coursera
2006	Specialist(Master) in applied math, Samara State Aerospace University