MAHMOUD **SEROUR**

AUTO. DRIVING SYSTEM ARCHITECT

Address: Ali Sheha Street, Alexandria Egypt · Phone: +201146302709, +201064027187
Date of Birth: 1994-03-15 · Military Service: Finished
Email: mahmoudsuroor2017@gmail.com

- Participated in major robotics competitions held in Egypt for 3 continuous years conquering international and regional trophies during my college.
- Have 5+ years of professional experience in system engineering especially related to powertrain, brakes and AD/ADAS systems (L1-L4).
- Acted as the Autonomous Driving R&D Team Lead at Brightskies architecting state-of-the-art L3-4 self-driving SW stacks on our R&D vehicle prototype from 2019 till 2021.
- I am currently leading the Autonomous Driving Team. I managed to increase the team's headcount to 16 engineers with a main focus of developing a SW platform for L3-4 Self Driving Systems.
- Was selected by Business Insider as one of the 35 pioneers under 35 age who are shaping the self-driving cars industry across the world.
- Was selected as a speaker in ADAS&AV Technology Expo Stuttgart 2022.
- Skilled in Self-driving systems SW and SYS architectures, Model-based development, Sensor fusion using both classical and deep learning approaches, Vehicle Networks Manipulation, Motion and path planning, Functional Safety, Processes Development (ASPICE), Tooling, Embedded C, and Robotics.
- Interests: R&D on self-driving systems, Deep learning, and Model-based design.
- Doing my postgraduate studies at Georgia Tech, OMSCS Program.

EXPERIENCE

FROM JAN 2022 – TO PRESENT

AUTONOMOUS DRIVING TEAM LEAD, BRIGHTSKIES

- Building a SW platform for L3/4 autonomous vehicles.
- Building up IPs with certain performance metrics per each stack.
- Example Application: Semi-Automated Annotation Engine, L3 Robo-Taxi Show Case in Urban Environment.

FROM JAN 2022 – TO PRESENT

AUTONOMOUS DRIVING SYSTEMS EXPERT, BRIGHTSKIES

- 2nd awarded expert in the company for self-driving systems.
- Maintaining a certain level of knowledge for self-driving systems across the company.
- Conducting internal training for self-driving systems.
- Company's No.1 representative for self-driving systems.

FROM NOV 2019 – TO DEC 2021

AUTONOMOUS DRIVING R&D ACTING TEAM LEAD, BRIGHTSKIES

- Built up the company profile, infrastructure, and road map for AD services.
- Built up the team knowledge by coaching them technically in all stacks (perception, localization, motion and path planning and vehicle control).

- Built up the company network of suppliers and partnerships for different sensors and controllers.
- Developed Brightskies SW Architecture and platform for L4 highway and inter-urban self-driving vehicle on two different architecture variants (NVidia & Intel).
- Delivered our first POC that was stacked above my architecture.
- Acquired multiple projects after several successful technical presentations with customers.
- Represented the company in several webinars like NVIDIA GTC2021.
- Matured our state-of-the-art perception, localization and motion and path planning algorithm, which will be patented in 2021.
- Architectured the perception stack to be used for semi-annotation processes context.
- Sensors selection and requirements management on a customized process designed by me and inherited from ASPICE.
- Up-to-date knowledge of recent approaches in sensor fusion.

FROM JAN 2020 – TO JAN 2021 (PART TIME WHILE BEING THE R&D ACTING TEAM LEAD)

SENIOR SYSTEM ENGINEER, BRIGHTSKIES

- Developed a SOC calculator for Brightskies battery management system.
- Managed SYS.2 process and supported FUSA activities for a traction drive system for MAHLE.
- Led an internal R&D project which involved mapping a real environment into 3D Carla environment to test self-driving cars algorithms.

FROM MARCH 2018 – TO JAN 2020

SYSTEM ENGINEER, BRIGHTSKIES

- Developed a fail operational system for RIMAC Nevera Driver Coach (up to level 4, ODD: racing tracks) and brakes systems (up to level 5) from a system and functional safety perspective.
- Developed the SW architecture for the driver coach.
- Developed the system state flow and the safety monitors.
- Developed scripts to automate some of the safety activities and migrate FTAs from Microsoft Visio to Ansys Medini.
- Developed a torque management system for Brightskies electric vehicle.

FROM MARCH 2017 – TO MARCH 2018

EMBEDDED SYSTEM ENGINEER, UPWORK

- Worked as freelancer at up-work during my military service period developing multiple projects related to control and system engineering.

FROM MAY 2016 – TO OCT 2016

SOFTWARE ENGINEER INTERN, VALEO R&D CENTER EGYPT

- Made a GUI using Microsoft Visual Studio to automate some test processes while interfacing with different tools: CanAnalyzer and Picoscope.

EDUCATION

JAN 2022-2024

MASTER'S DEGREE COMPUTER SCIENCE, GEORGIA INSTITUTE OF TECHNOLOGY

Computer Science Department
OMSCS PROGRAM

SEPTEMBER 2016

BACHELOR'S DEGREE, FACULTY OF ENGINEERING, ALEXANDRIA UNIVERSITY

Electrical Power Machines and Automatic Control Department.
Very good with honor: 83.3%.
Made a various of projects related to control and system engineering: solar panel cleaning robot (graduation project), 12 DOF humanoid, Auto-parking RC car and propeller display as well as projects related to power electronics: single and three phase AC voltage control drive.

SKILLS

- Model Based Development.
- Sensor Fusion.
- SW and SYS Architecture Development.
- Functional Safety (ISO26262, IEC61508, SOTIF, UL4600).
- Embedded C, C#, Python, C++.
- ASPICE.
- Control theory.
- Deep Learning.
- Computer Vision.
- Vehicle Hacking.
- Motion and path planning.
- Embedded Systems.
- Self-driving/ADAS/Powertrain/Brakes Systems.

PLATFORMS/SOFTWARE

- MATLAB.
- Enterprise Architect.
- PyTorch, TensorFlow.
- ROS.
- Roadrunner.
- NVIDIA Drive Platform.
- CARLA.
- Polarion.
- PyScripter, Visual Studio, Codeblocks.
- Linux.
- CanAnalyzer.
- CUDA, cuDNN.

INDEPDENT COURSEWORK

- Deep Learning with MATLAB and Deep Learning Onramp (MATLAB).
- Self-driving cars specialization (Coursera).
- Deep learning Nanodegree (Udacity).
- Sensor Fusion Nanodegree (Udacity).
- Pytorch Deep learning challenge (Udacity).
- Embedded Systems: Shape The World (edX).
- Autonomous Navigation for flying robots (edX).
- Deep learning with MATLAB. (Mathworks)
- Control of Mobile Robots (Coursera).
- Self-Driving Car Engineer Nanodegree (Udacity).
- Model-Based Automotive Systems Engineering (edX).
- Introduction to Real-Time Operating Systems (Udemy).
- Edge AI for IOT Developers using OpenVINO Nanodegree Program. (Udacity)

I read several references as well related to computer vision, algorithms development, deep learning and autonomous navigation for mobile robots to be able to coach the team.

LANGUAGES

- Arabic: Native.
- English: Fluent.
- German: Basic.

ACTIVITIES

I cofounded a robotics team called MIA “Made in Alexandria” which had been conquering the regional and international robotics challenges held in Egypt for 8 consecutive years. I made a robot in almost each category: underwater (ROV competition), minesweeping, flying (small drone), line following (IRC competition) and autonomous (ROBOCON competition) ending up with a small humanoid.

REFERENCES

Brightskies Self-driving POC.
My presentation about Brightskies AI solutions at NVIDIA GTC2021.
Business Insider Article about 2022 Self-Driving Rising Stars.
Speaker in ADAS&AV Technology Expo Stuttgart 2022.