Arpad Herbut | Mechanical Engineer

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US Permanent Resident - Green card valid for 10 years

Professional profile

Relocated to the U.S. in 2019, June. Deadline-driven Mechanical Engineer with 4 years of internal combustion engine development experience. 5 years experience in manufacturing and 3 years experience in part deign. Specialized in fluid, thermal and applied mechanical analysis. Works under tight schedules and limited budgets to achieve clear results. Well-versed in coordinating and managing analysis and design projects.

Technical skills

- **Mechanical engineering**
- **Product Design**
- **Computational Fluid Dynamics**
- **Structural analysis**
- **Automotive**
- **Project Management**
- **Manufacturing**
- **Thermal Analysis**
- **3D Modeling**

Career summary

Security Officer, Nov 2019
Cross Timber Security, Burleson, Tx
Security Officer at the Moncrief Cancer Institute.

Analysis Engineer, Feb 2017 – May 2019
Lupfe Lp., Budapest, Hungary
Conducted analysis studies of an experimental internal combustion engine, developed to be used in industrial electric quadcopter drones as a generator set (http://lupfe.com/products/genset). Mainly worked with Ansys Workbench.

Key responsibilities

- Designing cooling strategies for the engine head, especially around the combustion chamber
- Built steady and transient flow simulations of the intake and exhaust ports (Ansys Fluent)
- Airframe stress analysis for a quadcopter drone
- Determination of external load cases for stress analysis, search for worst case scenarios
- Optimization of various engine parts based on structural and thermal stress
- Detail design of thermal systems based on 1D-2D and 3D analysis
- Prepared process documentation of modeling methods for use by future employees
- Communication with team members and external suppliers to understand requirements and constraints
- Contact stress analysis, contact of gears, sliding surfaces (rockers)
- Analysis of rotating parts (main shaft, crank shaft)
- Bearings load distribution analysis
- Dynamic structural analysis. Modeling of the main shaft-rocker-spring system.
- Preparing meshes for static and dynamic cases
- Presentation of analysis results to design and management
- Built and maintained our IT system, a network of ~15 computers (Windows, Linux), engineering software (Creo Parametric, ANSYS), and a revision control system (TortoiseSVN).

Key achievement

- Due to the completion of the engine port design based on our analysis, the engine head will be manufactured in 2020 with cold-flow testing beginning shortly thereafter.

Design Engineer, Nov 2015 – Oct 2016
Lumoconcept, Budapest, Hungary
Custom lamp design company. Fast paced environment. Design cycle for a new lamp usually lasted about two to three months. I was responsible to design the product, create drafts of the parts and assemblies, plan and organize production schedules, and supervise the assembly of my design. (http://www.lumoconcept.com/)

- Discuss Technical requirements and gather project inputs.
- Interact with project manager(s) to understand requirements of the project.
- Interact with Project Manager(s) to review and ensure project progress as per project plan.
- Set the work priority as per the delivery timelines and keep track of project priority, schedules and various deliverables.
- Understand standards/practices being followed for product design & capture data to incorporate in project execution support from offsite location.
- Preparation of manufacturing drawings, 3D Part & assembly models, BOMs
- Provide mechanical design support to the engineering team for modifying the existing drawings/Models or creating new drawings as per the inputs provided by customer/manufacturer.
- Review and peer check BOM and 3D Models and drawings from Offsite deliverables.
- Understand and identify measures to be taken to close the gap of engineering, technical and quality requirements.

Analysis Engineer Intern Feb 2015 – Oct 2015
AVL AUTÓKUT Mérnöki Ltd., Budapest, Hungary
Aided in the development of internal combustion engine cooling systems and cooperated with an international team of design and mechanical analysis groups.
Key responsibilities

- Preparation of 3D model geometry for meshing
- Mesh setup for steady flow simulation
- Pre- and post-processing of water jacket simulation (AVL Fire)
- Presentation of analysis results

Analysis Engineer Intern, Mar 2014 – Jan 2015
AUDI HUNGARIA MOTOR Ltd., Gyor, Hungary
Explored and researched possible applications of the ABAQUS CFD software for the internal combustion engine development department (ABAQUS CFD, ABAQUS Standard, Ansys CFX, OpenFOAM, & Python).
Key achievement

- Created a fluid structure interaction model for oil filters to model the pressure load and resistance on the filter. Compared it to test data.
- Developed a post-processor in Abaqus CFD to evaluate heat transfer coefficient results from solid to fluid mapping. Investigated buoyant flow around a turbocharger and compared it to thermal camera test data.

CAM Programmer/Design Engineer, Oct 2011 – Dec 2016
NaVégre Műszaki és Szolgáltató LP, Hungary (Part time)

- Modelled 3D parts based on drawings, built machining plans for 2.5D milling, and wired electrical discharge machines (Esprit, CREO).
- Built and maintained the network between the CAM workstation, a 2.5D milling station and a wired EDM.
- Enhanced productivity and connected the design and manufacturing teams.
- Maintained a good relationship between the technicians and the management department, which led to an improved work environment and increased productivity.

Tile Installer, Renovation lead 2003-2011
SzegedEp Ltd, Szeged, Hungary
Work on renovation and construction sites independently. Prepare plans and quotes for customers. Train new employees for company standards. Cooperate with subcontractors and other contractors (as electricians, plumbers etc.)

Education and qualifications

Budapest University of Technology and Economics - Budapest, Hungary

- Master of Mechanical Engineering, MSC – 2018 - Department of Fluid Mechanics
  - Master Thesis based on Ansys CFX Immersed Solid method
- Mechanical Engineering, BSC – 2011 – Department of Applied Mechanics
  - Bachelor Thesis based on Ansys Fluent

Other experiences/skills

- **Software –** ANSYS Workbench, Fluent, CFX, ICEM, Abaqus, AutoCAD, Pro/ENGINEER, Solidworks, Solid Edge, Creo Parametric, AVL Fire, ANSA, OpenFOAM, Python, Catia V5, Inventor
- **Courses –** Esprit basic and wire EDM module; Esprit miller module; Pro/ENGINEER 5.0 basic course; Creo 2.0 Advanced drawing course
- **Community works –** Theodore von Kármán Dormitory (KTK) Sound and Video Studio; KTK College of Computer Studies; KTK Media group
- **Languages –** English (advanced); Hungarian (native); German (learned in high school); Serbian (basic)