H.A. (Henk) Jekel

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https://hajekel.github.io/cv.pdf
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Basic Info

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Dutch robotics engineer specializing in control systems, motion planning, ROS, deep learning, and computer vision. Developed various projects integrating these fields, aiming for a role as a robotics engineer focused on innovation and impact. More information is available at my portfolio website: https://hajekel.github.io.

Experience

Sep 2023–Ongoing | **Robotics Engineer**
IamMirte, Delft, Netherlands Engineered the MIRTE master robot's software and hardware, enhancing the practical learning experience for 120 robotics students. This role demanded a **continuous growth** mindset, integrating new technologies such as Docker, X11 forwarding, UART, PCB assembly, Servo Motor ID Programming, URDF generation, and mechanum wheel control implementation.
Hard Skills : ROS, C++, SSH, X11 forwarding, design, robot dynamics and control.

Sep 2023–Nov 2023 | **AI System Developer**
KLM, Amsterdam, Netherlands Developed and implemented an adaptive AI interactive voice response system, aiming to reduce KLM's employee training costs by 30%. Demonstrated **critical thinking** through the design of a minimal working example that met customer requirements and continuously improved it for real-time, human-like interaction. Utilized **creativity** in prompt engineering, enabling the telephone bot to simulate various customer scenarios using disfluencies for more realistic behavior. Demonstrated **problem-solving** skills by creating the first IVR using VOIP for a real-time, human-like call bot based on generative AI. Collaborated with a diverse team from India, Wales, and Iran, and a Dutch customer, requiring strong **cultural awareness** to integrate various perspectives effectively.
Hard Skills : Javascript, FastAPI, Python, Twilio, Streaming, HTTP, AWS, OpenAI API, VOIP, IVR.

Sep 2023–Nov 2023 | **MSc Robotics Teaching Assistant**
Delft University, Delft, Netherlands Facilitated courses in Robot Dynamics and Control, Deep Learning, and Multi-disciplinary Projects for over 300 students. This role required **leadership** to guide students through complex concepts and projects. For instance, set up meetings with a PhD researcher to clarify tasks and align solutions when students faced unclear assignments. Demonstrated **emotional intelligence** by assessing each student's understanding and using tailored analogies to explain abstract concepts. Worked with students from 21 different nationalities, necessitating strong **cultural awareness** to effectively communicate and empathize with diverse backgrounds and learning styles.
Hard Skills : Python, systems and control, arm/vehicle kinematics and dynamics, advanced manipulation.

Aug 2021–Nov 2021 | **AI Developer**
Plaex, Enschede, Netherlands Developed AI algorithms to enhance the accuracy and efficiency of Garby, an automatic waste sorting system.
Hard Skills : Deep learning, YOLOv4, Mechanical Design.

Sep 2019–Jul 2021 | **BSc Mechanical Engineering Teaching Assistant**
University of Twente, Enschede, Netherlands Provided instructional support in BSc mechanical engineering, improving student comprehension and application of mechanical principles through teaching methods and practical demonstrations.

Education

2021–2024 | **MSc. in Robotics**
Delft University, Delft, Netherlands Specializations in deep learning, computer vision, autonomous flight of micro air vehicles, tele-robotics and haptics, knowledge representation, and symbolic reasoning. Experience in motion planning, human-robot interaction, control theory, ethics, and multidisciplinary teamwork.
Hard skills: C++, Python, ROS, Machine Perception, Autonomous Flight of Micro Air Vehicles, Deep Learning, Computer Vision, Machine Learning, Robot Software.
Thesis: *Development and evaluation of visio-verbal teleimpedance interface using eye-tracking and LLMs*
Literature review: .
Supervisor: Luka Peternel.

2021 | **Deep Learning Specialization**
Online, Coursera Completed the Deep Learning Specialization on Coursera, offered by DeepLearning.AI and led by Andrew Ng. Acquired comprehensive knowledge of deep learning, covering Convolutional Neural Networks, Recurrent Neural Networks, LSTMs, Transformers, and advanced techniques like Dropout and BatchNorm. Gained practical experience in building and training neural network architectures, implementing them with Python and TensorFlow, and applying these models to tasks such as speech recognition, music synthesis, and natural language processing. Equipped with the skills to develop and optimize deep learning applications effectively.
Hard Skills : CNNs, RNNs, LSTMs, Transformers, Python, TensorFlow, NLP, Optimization Techniques, C++

2018–2021 | **BSc in Mechanical Engineering**
University of Twente, Enschede, Netherlands Specializations in Bio-robotics and Aircraft Engineering. Each quarter included a project related to the course subjects, where consistently took on the role of project leader. This experience significantly developed strong **leadership** qualities throughout the bachelor program.
Thesis: *Development and evaluation of visio-verbal teleimpedance interface using eye-tracking and LLMs.*
Supervisor: Bojana Rosic.
Grade: 8

Languages

HUMAN | Dutch (*fluent*), English (*fluent*), French (*basic*), German (*basic*).

MACHINE | Python (PyTorch, Tensorflow, NumPy), C++, JavaScript, Matlab/GNU Octave, bash/shell, LaTeX, R Markdown, HTML, CSS.

Awards

2023 | **Awarded first prize for best AIRLab robot design in MSc robotics.**
Ahold Delheize Delft, Netherlands
First prize for best AIRLab robot design of the MSc robotics.

- Technologies: ROS, OpenAI, ComputerVision.

Familiar Tools

Usual Workflow

Utilizes a **vim**-based setup within a tiling window manager (**I3**). For document compilation, relies on **Markdown** and **LaTeX**, with **biber** for managing references. For coding, uses **VSCode** as a code editor. Experienced across various operating systems including **Microsoft**, **MacOS**, and **GNU/Linux**.

Programs I'm Familiar With

Proficient in **tmux**, **ssh**, and **Blender** for creating complex renders, such as an aircraft model. Experienced in **SolidWorks**, **Matlab**, and **Jupyter Notebook**. Managed websites manually via **ssh** and **vim**, using **HTML/CSS/JavaScript** and tools like **GitHub Pages**. Familiar with **ROS** for robotics middleware, **Simulink** for simulation and model-based design, and tools for **Deep Learning and Machine Learning** including **PyTorch** and **TensorFlow**. Competent in the extensive use of **ffmpeg** for video processing and **imagemagick** for image manipulation.

Interests

Teaches salsa, bachata, and kizomba through weekly courses and workshops for beginner dancers, helping over **100** students improve their dancing skills each year. Leading these classes has honed **leadership** and **communication** skills, requiring clear instruction and motivation while fostering a positive and inclusive learning environment. This role also demands significant **cultural awareness** and **emotional intelligence** to engage effectively with students from diverse backgrounds and address their individual needs and concerns.
Visit my dance portfolio website for more information.