

Drd.ing. BERCIU Alexandru-George
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| Nr.crt. | Titlu lucrare | Scurta descriere | Cerinte | Nivel (licenta/master) |
|----------------|---|--|--|-------------------------------|
| 1 | Real-time indoor human detection. | Development of a software application capable of monitoring a room and analysing the characteristics of the occupants. | Basic knowledge of computer vision algorithms. Previous experience in Python is preferred, but other programming languages such as MATLAB can also be used. A high level of independence is required as the student will be collaborating with a research team! | BSc |
| 2 | Personalised automatic demand response control for an educational building. | Implementation of innovative methods based on artificial intelligence to control the electricity consumption of the buildings belonging to TUCN. | Basic knowledge of concepts such as building energy efficiency, demand response control and intelligent consumption control methods. Previous experience in Python is preferred, but other programming languages such as MATLAB can also be used. English language skills and a high level of independence are required, as the student will be collaborating with an international research team! | BSc |
| 3 | Personalised automatic demand response control for a residential building. | Implementation of innovative methods based on artificial intelligence to control the electricity consumption of residential buildings. | Basic knowledge of concepts such as building energy efficiency, demand response control and intelligent consumption control methods. Previous experience in Python is preferred, but other programming languages such as MATLAB can also be used. English language skills and a high level of independence are required, as the student will be collaborating with an international research team! | BSc |
| 4 | Intelligent lighting system according to people's features. | Development of an algorithm to control lighting systems according to the features and preferences of the participants in the room. | Basic knowledge of lighting standards and concepts such as building energy efficiency. Previous experience in Python is preferred, but other programming languages such as MATLAB can also be used. English language skills and a high level of independence are required, as the student will be collaborating with an international research team! | BSc |

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| 5 | Identification of consumers in a residential space with a minimum number of hardware pieces of equipment. | Development of an algorithm that allows high-accuracy identification of power-consuming equipment in a building using a minimum number of hardware devices. | Advanced knowledge of AI algorithms for signal analysis and processing. Previous experience in Python is preferred, but other programming languages such as MATLAB can also be used. A high level of independence is required as the student will be collaborating with a research team! | BSc |
| 6 | Monitoring patient health with smart textiles. | Processing and interpretation of medical data collected with smart textiles. | Basic knowledge of concepts such as smart textiles and IoT. Previous experience in Python is preferred, but other programming languages such as MATLAB can also be used. English language skills and a high level of independence are required, as the student will be collaborating with an international research team! | BSc |
| 7 | Smart sensors for personalised medicine. | Using innovative sensors for early disease detection. Software and hardware development of smart textiles equipment. | Basic knowledge of concepts such as smart textiles and IoT. Previous experience in Python is preferred, but other programming languages such as MATLAB can also be used. English language skills and a high level of independence are required, as the student will be collaborating with an international research team! | BSc |
| 8 | Impact of the indoor environment on quality of life. | Analysis of environmental quality's impact on the human body's main systems. | Basic knowledge of indoor space quality standards. Previous experience in Python is preferred, but other programming languages such as MATLAB can also be used. English language skills and a high level of independence are required, as the student will be collaborating with an international research team! | BSc |
| 9 | Environmental control to improve quality of life. | Development of a PoC-level software capable of controlling the environment to increase the quality of life. | Basic knowledge of indoor space quality standards. Previous experience in Python is preferred, but other programming languages such as MATLAB can also be used. English language skills and a high level of independence are required, as the student will be collaborating with an international research team! | BSc |