Continental
The Future in Motion

SUMMER PRACTICE PROJECTS 2023 TIMIȘOARA

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SELECTION PROCESS FOR SUMMER PRACTICE

1. APPLICATION:
Apply with your CV and a motivation letter, and mention the desired project.

2. ONLINE TECHNICAL TESTS

3. INTERVIEW SESSION (TECHNICAL AND HR)
Technical interview and/or personality tests. You can choose one or more from the different technical knowledge required: ANSI C, microcontrollers, Java, C++, LAbView, Matlab/Simulink, Python, hardware, mechanics, 3D design, Unreal Engine or IT.

TIMELINE

February	The projects are posted on Continental website
February – March	CV selection
February – April	Online Technical Tests
April - May	Technical interview sessions
May – June	HR Interview sessions
June	Final results are communicated to the candidates
July – September	Summer Practice stages


PROJECTS

Contents

SOFTWARE

HARDWARE

MECHANICS

IT

TESTING


SOFTWARE

SW/ ALGORITHM DYNAMIC MODULE TEST

PROJECT DESCRIPTION

Dynamic Testing is defined as a software testing type, which checks the dynamic behavior of the code which is analyzed. The main aim of the Dynamic tests is to ensure that software works properly during and after the installation of the software ensuring a stable application without any major flaws.

The main purpose of the dynamic test is to ensure consistency to the software. Dynamic testing involves testing the software for the input values and output values are analyzed.

Dynamic Module/ Unit Test is an important step regarding ADAS development process. Dynamic Module/ Unit Test requires the execution of the software units. The software shall be executed in test environment: Cantata/ Courage. Dynamic tests are performed with the knowledge of the module internals (written in C/ C++). This means that the branches and paths in functions and modules must be considered (code coverage).

TECHNICAL KNOWLEDGE REQUIRED

- C
- C++

NR. OF STUDENTS

20

COACH

Sergiu Detesan
Viorel Pop-Hotaran
Marcel Vuia
Elena Vierescu
Cristian Branescu

TOOL FOR AUTOMATIC TEST GENERATION

PROJECT DESCRIPTION

The tool will be used in the new Electric Mobility Platform of VW cars.

It shall facilitate the automatic tests creation by generating the test using the inputs/ outputs values described in the customer requirements.
This will help increasing of the automatic test coverage that will lead to a better quality of the product.

TECHNICAL KNOWLEDGE REQUIRED

ANSI C, Python or Visual C++ or Java

NR. OF STUDENTS

1

COACH

George Onea

ROAD FEATURES DETECTION USING DEEP LEARNING

PROJECT DESCRIPTION

Road Model Fusion (RMF) is a core component of the Comprehensive Environmental Model (CEM) used to describe the environment around the vehicle in our automated driving applications. RMF is responsible for processing information from all available sensor (e.g., cameras, radars) and provide a detailed description of the road around the vehicle.

Working together with our algorithm experts, you will implement and train a neural network in order to identify road structures in pseudo-image data (high resolution grid).

The target is to have a proof of concept implemented using Python and PyTorch, in a ready-to-use environment.

TECHNICAL KNOWLEDGE REQUIRED

Python, programming and CNNs experience

NR. OF STUDENTS

1

COACH

Flavius Gligor

CROSSING ROAD EXTRACTION FROM OCCUPANCY GRID

PROJECT DESCRIPTION

Road Model Fusion (RMF) is a core component of the Comprehensive Environmental Model (CEM) used to describe the environment around the vehicle in our automated driving applications. RMF is responsible for processing information from all available sensor (e.g., cameras, radars) and provide a detailed description of the road around the vehicle.

Working together with our algorithm experts, you will search and apply methods for grid-based pathfinding, distance evaluation and geometric functions, with the goal of detecting potential roads that cross the ego-road.

TECHNICAL KNOWLEDGE REQUIRED

C++, Python and/or MATLAB

NR. OF STUDENTS

1

COACH

Flavius Gligor

MATLAB PROTOTYPING FOR TRAFFIC PARTICIPANT FUSION

PROJECT DESCRIPTION
Traffic Participant Fusion (TPF) is a core component of the Comprehensive Environmental Model (CEM) used to describe the environment around the vehicle in our automated driving applications. As the name suggests, TPF is responsible for processing information from all available sensor (e.g., cameras, radars) into a fused traffic participant list, 360 degrees around the vehicle.

Working together with our algorithm experts, you will explore new ideas and implement a working proof of concept in our MATLAB rapid prototyping environment.

TECHNICAL KNOWLEDGE REQUIRED
MATLAB, C++

NR. OF STUDENTS
2

COACH
Flavius Gligor

AUTOMATIZATION OF DATA IN EXCEL

PROJECT DESCRIPTION
Having big amount of data that have to be processed in Excel files, we need a automation to be created in order to make this processing without human support. This automatization can be done in Python or VBA

TECHNICAL KNOWLEDGE REQUIRED
Python, VBA (we are also willing to train the students in case they are not familiar with these programing languages)

NR. OF STUDENTS
2

COACH
Florin Bogdan


HARDWARE

SUPPORT VW/BMW TESTING ACTIVITIES

PROJECT DESCRIPTION
Support various activities (HW Tests, FEA, PCB Design) in HW Team for different projects (VW, BMW, etc.)

TECHNICAL KNOWLEDGE REQUIRED
- Basic knowledge of electronics
- Basic knowledge of embedded systems
- Analog and digital circuits

NR. OF STUDENTS
1

COACH
Ion Enasel

DISPLAY CPM BASICS

PROJECT DESCRIPTION
Basic know-how for a Display – CPM (Component Product Manager)

- HUD – structure and functionality
- Basic knowledge for displays: hardware, mechanics, optics, system
- Supplier interface

TECHNICAL KNOWLEDGE REQUIRED
- hardware and mechanics - Chemistry

NR. OF STUDENTS
1

COACH
Delia Toader


MECHANICS

ASIC TESTING SUMMER PRACTICE

PROJECT DESCRIPTION

› Searching, ordering and managing the materials, external samples and services;
› Maintain internal material stock;
› Planning and tracking of EE activities;
› Manufacturing of samples (various boards, cables, test modules and load boxes, mechanical parts) for the ongoing projects.Control of EE project budget;
› Repair and modifications of samples;
› Participates to small design activities and update for test boards;
› Contributes to test execution and test reports;
› Logistic activities (packaging, handling, delivery and tracking) of packages;
› Equipment administration (repair, maintenance and calibration service);
› Testbench and equipment maintenance;
› Supports inventory process;
› Collaborates with the project team in order to complete own job efficiently.

TECHNICAL KNOWLEDGE REQUIRED

Practical experience using test tools: instrumentation for measurement and control; Electronic / Mechanical knowledge;

NR. OF STUDENTS

1

COACH

Sorin Androne

FIXING OF LARGE DISPLAY WITH ADHESIVE TAPES.

PROJECT DESCRIPTION

The scope of this project is to develop a concept, to design and produce the necessary parts and equipment, for testing a large display fixed with the help of adhesive tapes. The student will have the opportunity to learn the clusters basics, to make CAD design, to get in contact and to see how the sample shop/machines are working.

As well the student need to get in contact with adhesive tape supplier and together to choose the best tape for the application.

At the end the student can take part at the acquirement testing, and result analysis.

TECHNICAL KNOWLEDGE REQUIRED

The student should have finished II year of Technical University

NR. OF STUDENTS

1

COACH

Stefanut Daniel

SALES ADMINISTRATION: SERIES TOOLING INVOCING & RETROBILLING & OVERDUES

PROJECT DESCRIPTION
Sales Intern Duties and Responsibilities
Assist in the research and generate lists of series tooling for invoicing
Assist to provide input on customer documentation for invoicing
Help Sales Admin to prepare and send documentation to customer
Assist in series price setting and retro billing
Assist in solving overdue topics
Maintain specific sales reports

TECHNICAL KNOWLEDGE REQUIRED
Basic knowledge of globalization trends and Automotive technological needs in the regions. Basic knowledge of Conti specific technology and technical customer trends in Automotive

NR. OF STUDENTS
1

COACH
Roxana Oltean

HUD OPTICAL DESIGNER SPECIALIST

PROJECT DESCRIPTION
Basics in HUD optics:
- HUD structure and functionality
- HUD optical performance
- HUD optical design - basic
- Tools: use Speos or Zemax

Or
Basics in HUD optical measurements:
- HUD structure and functionality
- HUD optical performance
- HUD optical measurements
- Tools: use LMK,
- Practice in optical Lab

TECHNICAL KNOWLEDGE REQUIRED
Physics, Mechanical

NR. OF STUDENTS
1

COACH
Delia Toader

PRODUCT INTEGRATOR BASICS

PROJECT DESCRIPTION
Basic knowhow for a product integrator:

- HUD – structure and functionality
- Basic knowledge for HUD: software, hardware, mechanics, optics, system
- HUD assembly and verification
- Tools: Canoe11 and UTAS 5

TECHNICAL KNOWLEDGE REQUIRED
Basic understanding of Software, Hardware and Mechanics

NR. OF STUDENTS
2

COACH
Marcel Miclea

IMPLEMENTATION OF 3D DIGITAL IMAGE CORRELATION TEHNICS FOR MATERIAL TESTING IN QL TIMISOARA

PROJECT DESCRIPTION
DIC (Digital Image correlation) is a non-contact optical method to measure object's deformation.
Project's objective is to perform various material test methods (tensile, shear, 3point bending) on a tensile/ compression machine and measure the part's deformations with a GOM Aramis system and to determine the optimal system parameters for each test type.
More info about the system:

TECHNICAL KNOWLEDGE REQUIRED
Basic knowledge in mechanics and Strength of materials

NR. OF STUDENTS
2

COACH
Ionut Ailinei

BUZZ, SQUEACK AND RATTLE TESTING OF CONTINENTAL AUTOMOTIVE – USER EXPERIENCE PRODUCTS

PROJECT DESCRIPTION

In vehicle components must emit low noises for a high quality driving experience.

Even when car runs on the highway or you just want to listen a good song on your Hi-Def sound system in the car, the experience need to be at highest standard.

And for this Continental tests its products for so called BSR (Buzz, Squeack and Rattle).

Project's objective is testing for BSR Continental Automotive User Experience products into a hich class acoustic environment and help Continental sound engineer with client test reporting.

TECHNICAL KNOWLEDGE REQUIRED

Basic knowledge in mechanics and acoustic

NR. OF STUDENTS

1

COACH

Daniel Laslau

VIBRATION TESTING – ALL CONTINENTAL AUTOMOTIVE PRODUCTS

PROJECT DESCRIPTION

All electronic components must ensure their functionality for the whole lifetime of a car.

Even the car runs on smooths highways or you're drinving off road, the driving experience must be at highest class.

And for this Continental tests its products for vibration exposure.

Project's objective is testing for vibration all Continental Automotive products into a hich class laboratory and help Continental vibration engineer with client test reporting.

TECHNICAL KNOWLEDGE REQUIRED

Basic knowledge in mechanics

NR. OF STUDENTS

2

COACH

Darius Craciun

SEMICONDUCTOR STRATEGY

PROJECT DESCRIPTION
Semi-conductor shortage affects Continental due to disbalanced OEM(Original equipment manufacturer) contract and semi-conductor supply cycle.
Based on historical data we build models that produce forecasts on different levels, used as base forecast and therefore starting point in the CDP planning system and as planning base for purchasing/demand management and source of information to be shared with suppliers.

Long-term semi-conductor forecast on technology cluster as key input to secure capacities and make supplier/investment decisions.

TECHNICAL KNOWLEDGE REQUIRED
Programming Languages: Python OR R AND SQL Mathematics, Statistical Analysis, and Probability.

NR. OF STUDENTS
1

COACH
Gheran Claudia

CLOUD WINDOWS DEPLOYMENT PROCESS

PROJECT DESCRIPTION
A cloud solution for windows deployment. A process consisting of scripts and connections to databases to automate windows installations, only to supported hardware.

TECHNICAL KNOWLEDGE REQUIRED
Basic scripting knowledge

NR. OF STUDENTS
1

COACH
Adina Andriescu
Dan Sabau


TESTING

AUTOMOTIVE CYBER SECURITY THREATS ANALYSIS & VULNERABILITY MONITORING

PROJECT DESCRIPTION

Cybersecurity is becoming a fundamental concern for the development of autonomous vehicle (AV) systems.

As part of this project, you will have the chance to learn about State-of-the-Art Threats Analysis and Risk Assessment methodology. You will acquire knowhow about Cyber Security attacks and how to avoid them and you will get familiar with the Automotive Cyber Security Standards.
Nevertheless, you will learn about vulnerability monitoring and scanning and how to develop Cyber Security measures to overcome these challenges.

You will be part of a dynamic and passionate team who will guide you through the learning process.

TECHNICAL KNOWLEDGE REQUIRED

Microcontrollers, C, IT, hardware, electronics.

NR. OF STUDENTS

1

COACH

Alexandru Ghincea

AUTOMATIC TESTING OF AN AIRBAG CONTROL UNIT

PROJECT DESCRIPTION

As a student in Passive Safety Test Group you will learn about Airbag Control Unit, get in contact with the latest test equipment on the market, use SW functions to control complex/Real Time measuring equipment.

Inside our team we have several exciting projects open for you:

- Develop HW & SW tools that enable automatic test activities for the Airbag Control Unit.
- Develop automatic tests using C# and the preexisting CFramework.
- Maintain & develop Excel macros for test result evaluation

TECHNICAL KNOWLEDGE REQUIRED

Good programming skills. Basic electronics & uController know-how.

NR. OF STUDENTS

1

COACH

Antonie Murgulescu

Continental Automotive Romania SRL
Strada Siemens nr. 1, 300704 Timişoara, Timiş
T.: 004-0256-251-100
F.: 004-0256-253-071

www.romania.careers-continental.com

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