Máté SZEDLÁK

- Personal and University Projects -

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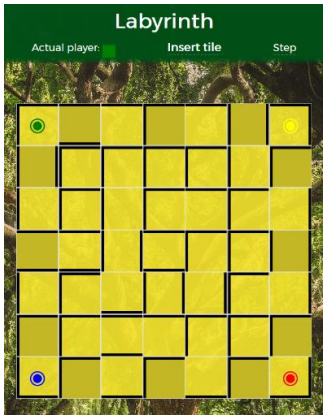
JAVASCRIPT GAME

Demonstrating JavaScript skills with and without using canvas.



Labyrinth game ***without*** *canvas*

Shooter game ***with*** *canvas*

Project members:

Máté Szedlák

My tasks:

With strong coding basics but without any JS knowledge roughly **in 2 months** I managed to learn the language deep enough to build these demo apps.

Skills:

Vanilla JavaScript (ES5, 6), HTML, CSS3

Period:

July - September 2017.

Sources:

https://github.com/szedlakmate/Labyrinth

https://github.com/szedlakmate/js-shooter-demo

TRUSS SOLVER PYTHON PROGRAM

The master thesis' aim was to write a code what evaluates 3D trusses and based on real-time measurement it suggests the updating of the model's stiffness matrix.

Project members:

Máté Szedlák, Dr Mátyás Hunyadi PhD, Rolando Chacón PhD

My tasks:

Designing a model updating method for trusses and implementing it in Python. Supporting the program with real-time measurements coming from an Arduino device programmed by me.

Skills:

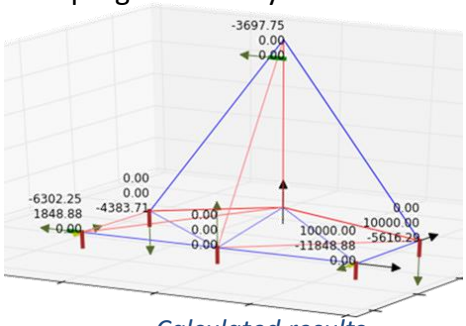
Numerical methods, Python, Arduino

Period:

September 2016 - March 2017.

Sources:

https://github.com/szedlakmate/3D-truss-model-updating
https://github.com/szedlakmate/arduino-ultrasound-distance-measurement



Calculated results

RFID MEASUREMENTS

The project's aim was to determine the best position of active RFID tags to reach the most stable and most precise measurements of a car movements.

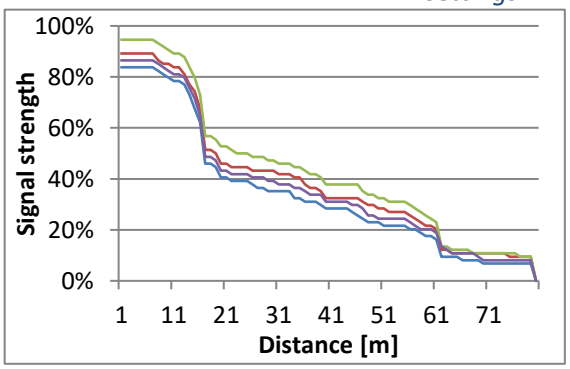
RFID settings

Project members:

Ármin Cséve, Dr Árpád Barsi PhD, Máté Szedlák, Nikol Krausz

My tasks:

My task was to process the measurements, generate the report and suggest which was the best position.



Results

Skills:

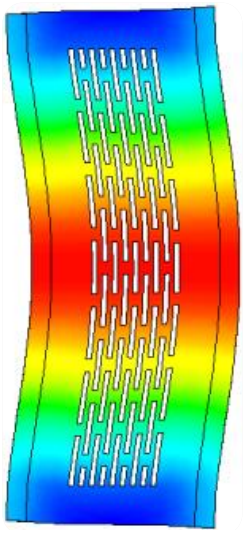
VBA scripting, Geoinformatics, Statistics.

Period:

1-31. August 2011.

STABILITY OF SLOTTED COLUMNS

The project's aim was to determine the stability of perforated columns.



Buckled beam

Project members:

Borbála Geleji, Dávid Visy, Máté Szedlák, Dr Sándor Ádány PhD

My tasks:

My task was to redesign an existing ANSYS macro to cut the wanted perforations and to perform the stability analyses.

Skills:

ANSYS programming, Stability theory, Civil engineering.

Period:

September 2012 - May 2014.

STABILITY OF C-TYPE SINGLE AND DOUBLE SECTIONS

The project's aim was to determine the compressional load-bearing capacity of the given single and double sections made by the Icelandic Scottsdale Ltd.

Buckled beam

Project members:

Dr Sándor Ádány PhD, Dr Attila Joó PhD, Máté Szedlák, László Kaltenbach, Miklós Kálló, Dr Kachichian Mansour PhD, Attila Halász, Péter Kálózi, Attila Soltész

My tasks:

My task was to perform the planned laboratory experiments, process the measured data and generate the report.

Skills:

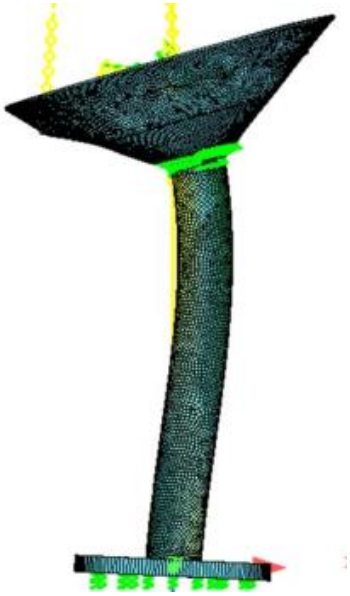
Performing experiences, VBA scripting, Stability theory, Civil engineering, Euro Code knowledge, Steel design.

Period:

March - May 2014.

NUMERICAL MODELLING OF A WATER TOWER (BSC FINAL THESIS)

The project's aim was to determine the maximal stresses of a water tower considering the dynamic load of the inner water.



Buckled shape of the tower

Project members:

Máté Szedlák, Dr Mátyás Hunyadi PhD

My tasks:

My task was to esteem the loads and the effects of the tower, to create a numerical model and to perform static and dynamical analyses on the structure.

Skills:

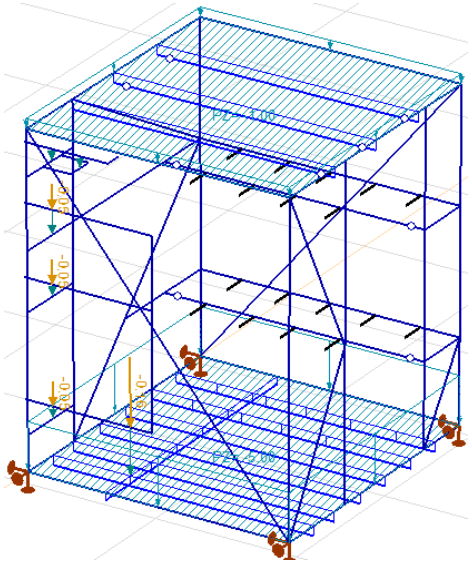
Sofistik scripting, Civil engineering, Finite Element Analysis, Euro Code knowledge, Reinforced concrete design.

Period:

February - May 2015.

DESIGN OF STEEL FRAMES

The project's aim was to design the offshore steel frames based on the schemes.



Steel frame in Axis

Project members:

Dr Dániel Merczel PhD, Máté Szedlák

My tasks:

My task was to create the numerical model of the structures, modify them to meet the design requirements and to generate the report.

Skills:

Civil engineering, Finite Element Analysis, AxisVM, Euro Code knowledge, Steel design, heuristic optimization, VBA data processing.

Period:

August 2015 - January 2017.

DRAWING OF DRILLING SECTIONS

As a part-time job, I helped my professor by drawing borehole sections for road planning.

Cross section

Project members:

Dr Miklós Kovács PhD, Máté Szedlák

My tasks:

My task was to draw the sections and sometimes to write a report about the relevant results from laboratory used by the engineers.

Skills:

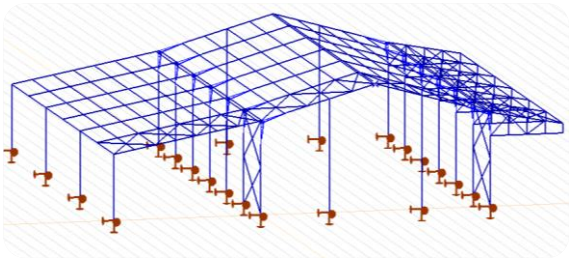
Civil engineering, Geotechnics, AutoCAD.

Period:

January 2014 - November 2014.

STEEL FRAME BUILDING DESIGN

The project's aim was to design a steel frame by using FEM analysis.



Steel frame building in Axis

Project members:

András Szilli, Máté Szedlák

My tasks:

My task was to create the numerical model of the pre-planned structures and modify them to meet the design requirements.

Skills:

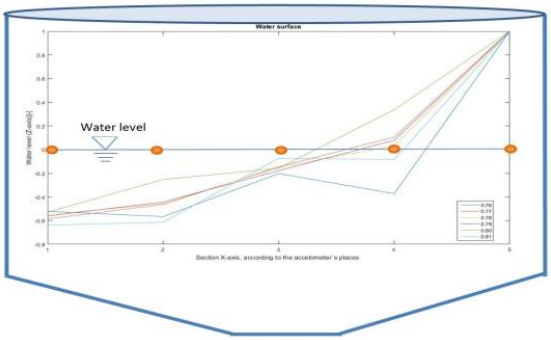
Civil engineering, Finite Element Analysis, AxisVM, Euro Code knowledge, Steel design.

Period:

March - April 2016.

DETERMINING FLUID'S EIGENFREQUENCY BY SPH METHOD AND EXPERIMENTS

The project's aim was to determine the eigenfrequencies of the given structure using different water levels.



"Deformed shapes" of the fluid

Project members:

Kata Ficker, Máté Szedlák, Balázs Tóth, Dr Mátyás Hunyadi PhD, Dr Viktor Budaházy PhD

My tasks:

My task was to plan and perform the necessary laboratory experiments and to build the numerical models using a solver implemented by Balázs.

Skills:

Basic Linux knowledge (setting up the environment, timing the scripts), Civil engineering, SPH method, Eigenfrequency identification, laboratory experiments.

Period:

February - November 2016.