Claudiu-Andrei Birlutiu

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Summary

Enthusiastic, hard-working Computer Science student with experience in analyzing, designing, implementation and testing of software applications. Passionate about Computer Vision, Artificial Intelligence and Computer Systems which simulate the human intelligence. Old passions for exact sciences such as Biology, Human Anatomy, Inorganic Chemistry and Physical Geography. Self-determined to learn as many new technologies as possible and to deepen his knowledge in the technical field. Eager for new challenges and to evolve into a developer career having an outlined algorithmic thinking, seeking to leverage solid technical skills and abilities to advance his career.

Education

Technical University of Cluj-Napoca   *2019-present*

Faculty of Automation and Computer Science

- Computer Science and Information Technology

National College "Horea, Closca si Crisan", Alba Iulia   *2015-2019*

Mathematics-Computer Science Intensive English
- Baccalaureate grades: Romanian language and literature: 9.5, Mathematics: 10, Computer Science: 10, Average: 9.83

Experience

Fortech Software Services   *July, 2022 - present / Cluj-Napoca*

Junior Software Developer

Fortech S.R.L   *Febraury, 2022-June, 2022 / Cluj-Napoca*

Intern Full Stack Developer
- Java Spring Boot and React Js

Skills

Programming Languages

Imperative Programming	C	C++
Object Oriented	Java	Python
Others	VHDL	Prolog	Haskell	Lisp	C Embedded	SQL(Oracle Certificate)
	HTML	CSS	JavaScript	MatLab
Operating Systems	Linux Mint	Windows 10
Frameworks & Libraries	Spring Boot	Jupyter	Matplotlib	Numpy	Pandas	PyTorch	Tensorflow
	OpenCV	OpenGL	GLM	Profiler
Software Development	Programming Paradigms	GIT	CLI	DevOps Lifecycles	Design Patterns
	SOLID Principles	Docker	PostgreSQL	NoSql MongoDB	Spring Security

Languages

Romanian	Native
English	Upper Intermediate
French	Beginner

Training

Automotive Bootcamp - Fortech   *February, 2022 - June, 2022*

Courses
- Git training with exercises
- Object Oriented Programming including SOLID principles

- Maven and Junit testing
- Design patterns and Java advanced including optional, streams, lambda expressions
- Clean code
- Hibernate with CRUD operations
- Spring Boot with exercises and simple web applications for training
- Microservices and Docker images with examples
- ReactJS training with exercises
- Agile Scrum

Volunteering

YouthBank Alba
2016 - 2019

Acquired skills
- Teamwork: part of a team of more than 10 people
- Problem-solving
- Project Management: analysis of some projects from the point of view of feasibility and eligibility
- Leadership: monitoring some team projects

Change Makers
2016, 2017, 2018

Acquired skills
- Project Management
- Communication: workshops and teamwork activities
- Leadership: discussions with local entrepreneurs

Personal Projects

Educational Soft - circle geometry

Desktop application for exemplifying circle geometry drawing different geometric figures with the mouse in the interactive GUI. Includes some properties like Lucas Circle, Adams Circle, Tucker Circle. Also, includes knowledge verification quizzes and allows the creation of user accounts to save progress

Used technologies
- Java application with Swing
- 4 versions of the application: MVP architecture, MVVM architecture, MVC architecture and Client Server
- Worked with Swing components for GUI
- Documented use cases and diagram classes in the design phase of the project
- Used Git to create feature branches/submit pull requests to the master branch
- Created friendly interface using Graphics 2D.
- Used PostgreSql as the database
- Used Hibernate for CRUD operations; JPA repository and native SQL statements
- Flyway for database versioning
- Worked with Sockets for Client-Server communication
- Used XML file to extract one of the 3 language options of application
- Applied design patterns: Observer, Builder, Singleton, Proxy, Command, Factory Methods

Soft School

Spring Boot Web application for students and teachers which allows the management of enrollment to courses and grading process.

Used technologies
- Java (Spring Boot framework), HTML, CSS, JavaScript
- Used Spring Boot Web Security for login process and user role management
- Worked with Thymeleaf for design and development of web pages using HTML, CSS and JavaScript
- Database design and development of database objects in PostgreSQL
- Worked with docker images for database.
- Used Hibernate for CRUD operations; JPA repository and native SQL statements

Food Delivery Management System

Desktop Application for food order processing and the management of a restaurant.

Used technologies
- Java, Swing
- Documented use cases, unit test cases, class diagrams during construction phase for the module of the project

- Used different design patterns: design by contract, composite design, observer design
- Worked with collections in Java, stream, filter and Hash Tables
- Used serialization and deserialization for the persistence of the objects
- Implemented GUI with Swing components and defined different kind of users

ORDER MANAGEMENT

Desktop Application for online shop and order processing.

USED TECHNOLOGIES

- Java, MySQL, Swing
- Created a more user-friendly interface focusing on Swing components
- Database design and development of database objects in MySQL Server Workbench
- Used the technique of reflection

QUEUES SIMULATION

Desktop Application for simulating real queues and compute the efficient waiting time.

USED TECHNOLOGIES

- Java, Swing
- Used thread parallelism for simulating the real time queues
- Worked with thread safety data and atomic operations
- Developed application with based on the functional specifications.

POLYNOMIAL CALCULATOR

Desktop application for operations on polynomials: addition, subtraction, multiplication, division, differentiation and integration.

USED TECHNOLOGIES

- Java, Swing
- Documented use cases, unit test cases
- Worked with regular expressions
- Used MVC architectural pattern

KMEANS

Image processing project - KMeans algorithm implemented for image segemntation. A way to view segmentation is clustering, where pixels sharing certain features such as color, intensity, or texture are grouped together and represented as a single entity.

USED TECHNOLOGIES

- C++, OpenCV
- Used OpenCV classes to read and process images and define clusters
- Determine the histogram of an image and extract the main features of it
- Applied the algortihm on GrayScale and RGB images
- Used OpenCV functions to transform the RGB image in HSV channels

PREDICT MERGING CONFLICTS

Found a classifier (Random Forest) which solves the task of predicting a conflict in software projects, in case of concurrent commits.

USED TECHNOLOGIES

- Python, pandas, numpy, matplotlib
- Read data from a .csv file
- Split data in train data set (0.8) and test data set (0.2)
- Discovered and visualized the data definning a correspondance matrix and generating different plots
- Prepared data for ML algorithms and trained more classifier: Decision Tree Classifier, Random Forest, Gradient Boosting Classifier, Naive Bayes Classifier, K-Nearest Neighbor Classifier, Logistic Regression Classifier, SVM Classifier
- Analyzed the accuracy, precision, recalls and the F1 scores for each classifier
- Fine tune the best classifier for the problem, Random Forest

Text Analyzing Hugging Face

NLP project using Hugging Face: sentimental analysis, en-ro translator and question answering model.

USED TECHNOLOGIES
- Python, Trasnsformers, Tensorflow
- Tokenization of propositions for extracting some features
- Training a model for question answering model

Relay Nodes

Implementation of a system formed from one sender and 3 destinations which communicate via TCP and respect the relay nodes architecture.

USED TECHNOLOGIES
- Java, Sockets
- Used Wireshark to capture and analyze the transmissions

LedCube

A 4x4x4 LED cube with 3D effects and patterns. Code(sketches) for the Arduino Mega 2560 to control the individual LEDs to display patterns for a captivating desktop light show on music.

USED TECHNOLOGIES
- C, Arduino
- Used Bluetooth Module
- Worked with PWM signals
- Used the arduino board's interrupt system and registers

Medieval Village

OpenGL 3D application - 3D scene of a medieval village with animations

USED TECHNOLOGIES
- Used Blender for static scene modeling
- Used GLM library for matrix transformations
- Worked with Shaders for openGL pipeline (Vertex, Fragment and Geometric Shaders)

VGA Controller

VHDL project. Implementation of a FSM for reading images from a microSD card and displaying them on a VGA monitor using Digilent Nexys 4 DDR board

USED TECHNOLOGIES
- VHDL programming language
- Design and implemetation of a fsm to initialize reading from a microSD card
- Used Nexys 4 DDR board

Matrix operations

Assembly x86

USED TECHNOLOGIES
- Assembly x86
- Implemented matrix operations using registers

Extra

CERTIFICATIONS
- Database Design and Programming with SQL, Oracle Academy - 2019

ERASMUS+
- The European Youth Exchange E.T.R.E in Cherbourg 2017
- Erasmus+ project Calabria (Italy) 2018

OTHER TOPICS OF INTEREST
- Artificial Intelligence: search problem agents, local search algorithms, classical planning, first order logic
- Functional programming: Lisp, Haskell, ML
- Operating systems: memory management, system call functions, process management and multi-Threading
- Structure of Computer Systems: communication protocols (UART, SPI), memory hierarchy

Communications and teamwork skills

- Listening skills
- Problem-solving, project management skills

Driver's license

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