## PERSONAL INFORMATION

# Jakov PAVLEK

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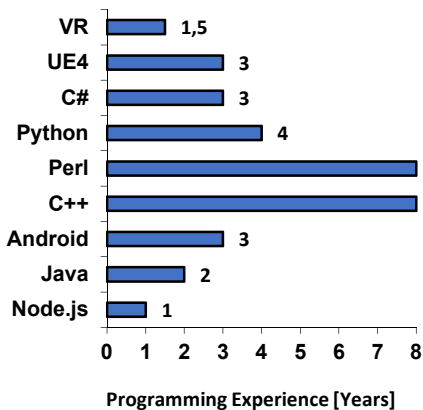jakov.pavlek@gmail.com     Skype live:jakov.pavlek_1
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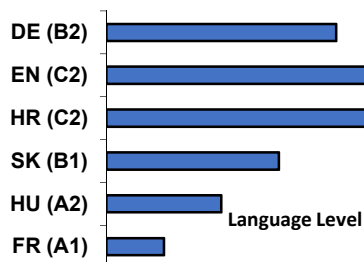
## WORK EXPERIENCE

### Skill Highlights

- Strong analytical capabilities
- Strong technical affinity
- Complex problem solver
- R&D Oriented
- Solution-oriented attitude
- Innovative
- Creative

### Programming Skills

| Skill | Years |
|---|---|
| VR | 1,5 |
| UE4 | 3 |
| C# | 3 |
| Python | 4 |
| Perl | 8 |
| C++ | 8 |
| Android | 3 |
| Java | 2 |
| Node.js | 1 |

**Programming Experience [Years]**

### Languages

| Language | Level |
|---|---|
| DE (B2) | |
| EN (C2) | |
| HR (C2) | |
| SK (B1) | |
| HU (A2) | |
| FR (A1) | |

**Language Level**

### Senior C++ Unreal Developer [Sep 2021–Today]

*Arcware GmbH*, Munich, DE

3D Data Visualization in Unreal Engine, Interactive Video Streaming - working throughout the development cycle, from quick proofs of concept through customer projects to enterprise-ready solutions with automated testing, deployment and release planning - Development, integration, support of Arcware platform, bug-fixing, testing, communication within the team, writing documentation, suggesting development process improvements.

Achievements: implemented 3D visualizations of large graphs data representing 8-dimensional search engine results from a knowledge database, implemented Unreal Engine 4/5 code plugins as part of Arcware platform SDK for Interactive Video Streaming, extended developer friendly blueprints functionality (K2Node), Perforce Depots & Streams setup; P4-Git (+Jira) integration;

[Technologies: **C++14/17,** Unreal Engine 4/5, PixelStreaming, Visual Studio 2019, VS Code, Perforce P4V, P4Admin, GitLab, Atlassian: Jira, Confluence; Sophos SSL VPN Client, MS Outlook, DropBox, MS Teams, Slack, Windows 10, NVIDIA GPU, Methodology: Kanban, onsite & remote].

### Integration Engineer I [Sep 2020–Mar 2021]

*Verimatrix GmbH*, Ismaning, DE

IT Security - Development, integration and support of VerimatrixDRMClient apps, C++ web-based client application series of products for video streaming and content protection (for Windows, Android, iOS, Mac, STB, Linux platforms). Feature programming & development, bug-fixing, testing, code reviews, communication within the Scrum team, writing documentation, suggesting improvements.

Achievements: Implementing HDCP client notification for Mac, Android & Windows; V*erimatrix Certified Engineer (Certificates: VCAS 4.3, Internet TV, IPTV, Multi-DRM);*

[Technologies: **C++11,** VS Code, XCode, Git, GitHub, SVN, Android NDK, JNI, ADB, Jenkins, Atlassian: Jira, Confluence; Cisco AnyConnect VPN, MS Outlook, MS OneDrive, MS Teams, Zoom, Slack, Zendesk, Salesforce, Cornerstone, Remote Desktop (Win/Mac), VCAS Server, DRM Client, iOS, tvOS, Android, Linux, Windows 10, STB, iPhone, Mac Mini, MacBook Air, Methodology: Scrum, onsite & remote].

### Senior Software Engineer [Aug 2020–Sep 2020]

*Black Shamrock*, Dublin, IE

Working on PS5 and XSX porting project for Mobile Suit Gundam Battle Operation 2 - resolving plugin compatibility issues, memory & runtime optimization, bug-fixing, game testing, communication within the team, writing documentation, documentation proofreading, suggesting technical improvements.

Achievement: IncrediBuild setup in a LAN, reducing the project build times by 83%.

[Technologies: **C++14**, C#, **Unreal Engine 4,** Visual Studio 2019, Audiokinetics Wwise, Perforce: P4V; SN-DBS; Slack, Atlassian: Jira, Confluence, Swarm; Slack, Windows 10, Prospero, Orbis, FortiClient VPN; Methodology: Scrum, remote].

### ICT Consultant [May 2020–Jun 2020]

*Jakov Pavlek – ICT Consulting & Programming Services*, Unterschleißheim, DE

Working on SpellBreak project, a battle royal RPG multiplayer game & on an unannounced game tittle. Build time optimization, GUI & Gameplay bug-fixing, communication within the Scrum team, code testing and writing documentation, suggesting technical improvements.

Achievement: IncrediBuild setup in a LAN, reducing the project build times by 83%.

[Technologies: **C++14**, C#, **Unreal Engine 4,** Visual Studio 2017, Haxe; Perforce: P4V; IncrediBuild; Atlassian: Jira, Confluence, Swarm; Slack, Windows 10, OpenVPN; Methodology: Scrum, Remote].

### Senior Developer [Jan 2020–May 2020]

*Topalsson GmbH*, Munich, DE

Responsible for Digital Twin Engine (DTE) development in the automotive industry field; Implementing code upgrades to newer Unigine Engine versions. Communication within the Scrum team and with customers, writing documentation, code testing, bug-fixing, suggesting technical & business process improvements.

Achievements: Implemented specific 3D geometry data streaming from the engine through https-based streaming service API to the frontend, implemented automated interpolation-based camera transitions for vertical and physically based cameras.

[Technologies: **C++17**, Asio library, **Unigine Engine 2**; Python 2 & 3; Visual Studio 2015, 2017; Postman, Json; Git, Git Extensions, Perforce; Jenkins; Jira, Confluence, Slack, MS Teams; Windows 7; Isilon, VPN; Methodology: Scrum, Onsite/Remote].

### Unreal Engine Developer [Jun 2019–Nov 2019]

*Hologate GmbH*, Munich, DE

VR Programming in C++ & Blueprints; Communication with PM, designers & artists, writing documentation, testing, bug-fixing, suggesting technical and business process improvements.

Achievements: Implemented Captain Cook, a multiplayer VR game prototype for Hologate Arena VR System in UE4 (VR controller programming, multiplayer network programming, physics programming, NPC AI programming, VFX programming of liquids, created spectator camera level sequences).

[Technologies: **C++14**, C#, **Unreal Engine 4**; Visual Studio 2019; Doxygen; Perforce; Jenkins CI/CD; Jira, Confluence, BaseCamp; Windows 10; **HTC Vive**, Intel NUC; Methodology: Agile].

### Senior Programmer [Apr 2019–May 2019]
*Limbic Entertainment GmbH*, Langen, DE

GUI programming in **UE4** on Memories of Mars project; UMG and **C++ programming** for PC and consoles (Xbox One, **PS4**), Estimation and monitoring of user stories and subtasks, bug-fixing, suggesting technical and business process improvements.

Achievements: UI map menu zoom and scroll features programming controls for PS4 console port; Suggesting FASTBuild distributed parallel C++ compilation implementation.

[Technologies: **C++14**, C#, **Unreal Engine 4**, Visual Studio 2019, Visual Assist, Doxygen; Perforce; Jira, Confluence, Hansoft, HipChat; FASTBuild; Windows 10, Orbis; Methodology: SCRUM].

### Gameplay Programmer [Jul 2018–Apr 2019]
*Staramba* SE, Berlin, DE *(NEXR Technologies SE, DE since Oct 2019)*

Programming in C++ and Blueprints in UE4 environment, creating and giving presentations, communication with designers and artists, writing documentation, code testing and bug-fixing.

Achievement: Implemented VR Soccer (Kicker), a single-player game prototype in UE4 as part of Staramba Spaces/Materia.One project. UE4 physics programming in C++ (Magnus force and air friction simulation) for table-tennis top-spin ball slicing in Timo Boll vs. KUKA robot VR Experience.

[Technologies: **C++14**, **Unreal Engine 4**, **Visual Studio 2017**, Doxygen; **Perforce**; **Jira**, **Confluence**, Hansoft, HipChat; IncrediBuild; Windows 10; **Oculus Rift**; Methodology: SCRUM].

### C++ for Game Developers - Course Lecturer [Apr 2018–Jun 2018]
*Machina*, Zagreb, HR

Preparing C++ course curriculum, creating code samples, presentations, game projects, student consultations & support, C++ coding standards, using Git in a team project.

[Technologies: **C++11, 14, 17**; Visual Studio 2017 Community Edition; **Git**, GitHub, Gource; PowerPoint].

### Software Engineer [Dec 2017–Apr 2018]
*Creative Fields Ltd.*, Zagreb, HR

**C++ GUI software engineer** for simulations in computer fluid dynamics (CFD) on CF-MESH project; developing new features, building **Qt** plugins, testing, bug-fixing.

Achievements: Implemented customizable measurement unit conversion module to support named SI units, imperial & US customary measurement system units in GUI; extended user-customizable Qt wizard functionalities.

[**C++11**, **Qt**, **Qt Creator;** XML; **Git**; Windows 10, Linux CentOS; Methodology: Kanban].

### C++ Programmer in Unreal Engine 4 [Oct 2016–Nov 2017]
*Gamepires*, Zagreb, HR

**C++ & Blueprint gameplay programming in UE4**; GUI programming; AI programming.

Achievements: Implemented HUD & GUI programming elements including vital functions and real-time data visualization of fine detailed character body metabolism simulation; modelled & implemented AI behaviour and navigation of flying camera drones; character animation to ragdoll physics blending debugging; modelled, implemented & integrated 4 wheel vehicle physics behaviour (PhysX configuration), user controls, user-vehicle interaction on SCUM Project - Open World Survival Game;

[Technologies: **C++**, **Unreal Engine 4**, **Visual Studio 2017 Professional**; MS Team Foundation Server (TFS), **Perforce (P4V)**, SVN; Windows 10; Methodology: Pure Agile].

### Software Engineer [Nov 2015–Aug 2016]
*Amphinicy Technologies*, Zagreb, HR

**Software Engineering & Development** in Linux environment on iDirect Pulse Satellite Network Management System (NMS) project.

Achievements: Implemented parallel selective data migration process over the network by using REST API (4-person team); Implemented WebSocket to SNMP agent (PoC) to ensure SNMP compatibility for Critical Event Handling (3-person team).

[Technologies: Perl, **C++**, Node.js, PostgreSQL; **Git;** Jenkins; Red Hat Enterprise Linux (RHEL); Methodology: SCRUM, international distributed team].

### C++ Programmer [Jun 2013–Nov 2015]
*Ocean Media LLC*, Zaprešić, HR

Indie & casual games development in Ocean Game Engine (OGE) for multi-platform environments; **C++ programming**; GUI programming; game porting to Android & Linux; Python, XML & Perl

scripting; game level design; model design; data modelling, debugging, critical code optimization.
Published Game Titles: <u>Solar Division</u> (Tower Defence; Steam, PS4), <u>Zotrix</u> (Top-Down Arcade Space Shooter; Steam), <u>Ace of Words</u> (Word game; App Store), <u>Scossa Dice Game</u> (Casino game; Android, iOS), <u>Family Vacation 2: Road Trip</u> (Point & Click Hidden Object Adventure; <u>Big Fish Games</u>).
[Technologies: **C++11**, Python, Perl, Java, JNI/Android NDK, XML; **Visual Studio** 2010, 2012, 2013**,** Eclipse, Android Studio, <u>Total Commander</u>; <u>TortoiseSVN</u>; **Windows 7**, Mac, Linux, **Steam, Android**, iOS, **PS4**; Methodology: Agile].

### Secondary Education Teaching Professional [Oct 2012–Jul 2013]
*Fausto Veranzio Engineering Technical School*, Zagreb, HR

Teaching electrical engineering and **computer programming**. Class teaching duties and administration. Writing EU project application. Organizing origami workshop.

### Technical Education & Informatics Teacher [May 2012–Jun 2012]
*Ljudevit Gaj Elementary School*, Zaprešić, HR

Teaching Programming, Technical Education and Mathematics as a substitute teacher. Administration.

### Technical Manager, CTO [Aug 2008–Oct 2011]
*Omonicon - ICT Management & Consulting*, Zagreb, HR

Providing ICT consulting services for the client; Market research on IT infrastructure & services accessibility for data centre comparative feasibility study. Organizing external IT & technical services. Organizing technical expert test creation for computational fluid dynamics (CFD) field. Website administration and maintenance.

### Research and Teaching Assistant [Jan 2005–Dec 2011]
*Faculty of Electrical Engineering and Computing, Zagreb, HR*

**Research & Development** on <u>Hascheck</u> (Croatian Academic Spellchecker) **Web Service, Data mining** research and **statistical data modelling** applied to **machine learning** in the context of language technology web services.

Achievement: word acquisition process speedup: 4000 times, automated classification accuracy: 75% for very rarely used words, doubled the speed of learning process under human supervision.
[Technologies: Perl, Python, C#; Google Search API; Linux, Windows XP, Vista, Win 7].

## EDUCATION AND TRAINING

### Mobile Applications Programmer–Android [Nov 2014–Sep 2015]
*Algebra Public Open College, Zagreb, HR*

Java programming basics for Android; Introduction to programming on Android platform; Introduction to SQL; Application programming for Android platform; Graphics, sensors and game development for Android; Publishing application on Google Play store; Project: Creating Android Application; Final exam; 8 ECTS.

### Master of Science, Mr. Sci. (M.Sc.) [Feb 2005–Mar 2010]                    EQF level 7
*Faculty of Electrical engineering and computing, University of Zagreb, Zagreb, HR*

Master Thesis Title: Online Spell Checker Lexical Database Expansion. Discrete Mathematical Models, Probability and Statistics, Intelligent control and Games of Automata, Combinatorial Algorithms, Algorithms in Bioinformatics, Distributed Information Systems, Knowledge Discovery in Data Sets, Data Warehouse Modelling, Communications in Virtual Environments. 390 ECTS; M.Sc.; GPA: 5.00/5.00.

### Graduate Engineer of Electrical Engineering, profile:                    EQF level 7
### Telecommunications and Informatics [Jul 1999–Sep 2004]
*Faculty of Electrical engineering and computing, University of Zagreb, Zagreb, HR*

General: Mathematics - Functional Analysis 1, 2, 3, Linear Algebra, Discrete Mathematics, Probability and Statistics, Stochastic Processes, Graph Theory; Physics 1,2
Occupational: Wide range of courses in Electrical Engineering, Telecommunications, Radiocommunications; significant number of courses in Computing and Computer Science, courses in Economics, Entrepreneurship, Managerial decision making and Organization psychology;
301 ECTS; B.Sc.+ M.Sc.; GPA: 4.13/5.00

## PERSONAL SKILLS

**Mother tongue**  Croatian

**Foreign languages**

| | UNDERSTANDING | | SPEAKING | | WRITING |
|---|---|---|---|---|---|
| | Listening | Reading | Spoken interaction | Spoken production | |
| English | C2 | C2 | C2 | C2 | C2 |
| | ETS Test of English as a Foreign Language (TOEFL) CBT Certificate, 270/300 pts, Jan 2006, Zagreb, HR; | | | | |
| German | B2 | B2 | B2 | B2 | B2 |
| | *Deutsch - B2.2, DaZ,* <u>Volkshochschule Augsburg</u> (Oct 2020 - today), | | | | |
| | *Deutsch - B2.1, DaZ,* <u>Volkshochschule Berlin Mitte</u>, Dec 2018 - Feb 2019, Berlin, DE; | | | | |
| | *56. Internationaler Sommerkurs 2004, Mittelstufe 2,* <u>Johannes Gutenberg-Universität Mainz</u>, Aug 2004, Mainz, DE; | | | | |

| Slovak | B1 | B1 | B1 | B1 | B1 |
|---|---|---|---|---|---|
| | <u>Faculty of Humanities and Social Sciences</u>, University of Zagreb, Jun 2005, Zagreb, HR; | | | | |
| Hungarian | A2 | A2 | A2 | A2 | A2 |
| | <u>Faculty of Humanities and Social Sciences</u>, University of Zagreb, Jun 2005, Zagreb, HR; | | | | |
| French | A1 | A1 | A1 | A1 | A1 |
| | <u>EdukaCentar</u>, Jan 2013, Split, HR. | | | | |

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
<u>Common European Framework of Reference for Languages</u>

**Communication skills**

**Good motivator, inspire people, create positive working atmosphere** (feedback from colleagues).

**Team spirit, fast learning, easily adapting**, especially good ability to adapt to multicultural environments. Daily **communication within agile international cross-functional project teams**. **Presentation skills** gained through public presentations in academic and business environment.

**Organisational / managerial skills**

Team & Project management experience:
*Hascheck008 - Single Word Language Origin Detection and Phonological Normalization*, Oct 2008 - Jan 2009 [3-member programming **team lead**; Perl, Python];
*Hascheck007 - Exploring Lexical Classification*, Oct 2007 - Jan 2008 [6-member **team coordinator**; C#, Perl, Python];
*Graph colouring*, Transmission systems project, Feb - June 2002 [**lead programmer, coordinator**; COSMOS developing environment for MS .NET **C++**];
*Virtual Router Redundancy Protocol*, Information networks project, Oct 2001 - Feb 2002 [**team coordinator; Linux**].

**Course Certificates & Workshops**

*Verimatrix Certified Engineer (Certificates: VCAS 4.3 For Internet TV, VCAS 4.3 For IPTV, VCAS 4.3 For DVB, VCAS 4.3 for Multi-DRM)*, <u>Verimatrix</u>, Nov 2020 - Jan 2021, Ismaning DE;
VCAS 4.3 Platform, VCAS 4.3 For DVB, Code Protection Course, Verimatrix Analytics 2.0.9, VCAS Solutions in the Verimatrix Secure Cloud, Code of Ethics, Information Security Training Awareness.
*GUI Development with Qt5 (GUI-Entwicklung mit Qt5)*, <u>Alfatraining</u>, Dec-Jan 2020, Munich, DE;
*First Aid Training (Betriebliche Erste-Hilfe-Ausbildung)*, <u>Die Johanniter</u>, Oct 2019, Munich, DE;
**STEMI Robot/Android App** *Workshop* - <u>*IoT Fest Zagreb*</u> [Android, Arduino, MIT App Inventor 2], Hubraum Krakow/Technology Park Zagreb, Jun 2017, Zagreb, HR;
<u>*Android Application Programmer*</u> [Android, Java, Android Studio], <u>Algebra</u>, Sep 2016, Zagreb, HR;
*CityOS/<u>Hub385 IoT Hackathon</u> - Smart mAIor Project* [Arduino, C, Python, IoT Cloud Platform, 4 member team], Jun 2016, Zagreb, HR;
<u>*CityOS Brave New World Makers United*</u>, *Zero To Hero Workshops*, Jun 2016, Zagreb, HR:
*Drone Automation* [Node.js, JavaScript, Parrot 2.0 Drone], *Build an IoT Device* [Arduino, C], *App Design For IoT* [UX Design], *IOS Apps Development* [IOS, Swift 3.0], *IoT with ESP8266* [Arduino, C];
*Mobile Application Development for Google Android Platform*, Algebra & Agency for Vocational Education and Training and Adult Education, Jan – Feb 2013, Zagreb, HR;
**Android Application Programming**, Coding Academy, Jul – Sep 2012, Zagreb, HR;
*Medical imaging for diagnosis, image guided surgery and drug discovery* [image processing operations & techniques; medical image technology & applications; Image processing filters & algorithms; Advanced image processing algorithms; Lab Exercises in Matlab; Final Exam: 4/5; 4 ECTS], Université catholique de Louvain, Jul 2004, Louvain la Nouve, BE;
*Electromagnetic fields and their effects* [electromagnetic theory; non-ionising radiation and its effects on human & environment; practical exercise - measuring radiating power of different mobile phone models; visiting Ericsson R&D Centre in Gothenburg; Final Exam: 19/20; 2 ECTS]; Chalmers University, Jan–Feb 2004, Gothenburg, S;
*Web Acrobatics II, Dynamic Web Programming in PHP (PHP+SQL/PL)*, Carnet – Edupoint Educational Centre, Dec 2003, Zagreb, HR.

**Conferences & Events**

*Reboot InfoGamer 2017, 2016 (Gamepires presenter), 2014* (OceanMedia presenter), Zagreb, HR;
**SCRUM Training**, Amphinicy Technologies & iDirect UK Ltd., Feb 2016, Zagreb, HR;
6 other international scientific conferences and PhD workshops, 2005-2011. (Full list of conferences and workshops available on request).

**Competitions**

**National Mathematics Competitions on national level in top 25 in generation in Croatia in 1999, 1997, 1996**. (Certificates available on request.)
National Enigmatics Competition (3rd place), <u>Feniks Enigmatic Magazine</u>, May 1999, Supetar, HR;

**Scholarship**

Ministry of Defence, Republic of Croatia, 2004-2005, Zagreb, HR.

**Association Memberships**

Meetup <u>MUC++</u>, April 2018-Today, Munich, DE;
<u>Vocal Tonic</u> Choir, August 2019 - Today, Munich, DE;
<u>Croatian Origami Society</u>, 2012 - Today, co-founder, Zagreb, HR;

**Publications**

<u>Authored & co-authored 5 scientific publications</u> in the field of Natural Language Processing (NLP) & Speech Synthesis; Human-Machine Interfaces (HMI) & Game Development; Distributed and Automated Lexical Acquisition; Artificial Intelligence (AI) and Radar systems. (Available on request).