Nico Orrù – Principal Programmer

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Overview

Profile

Versatile, resourceful, polyglot, veteran developer/engineer/programmer experienced in networked console games and immersive applications, as individual contributor and team and tech lead.

Objectives

My main interests lie in engineering reliable, maintainable, scalable, distributed systems of heterogeneous nature.

My favourite domains include networked games and digital entertainment, in which I can play production and R&D roles in technical areas, ranging from the likes of hands-on software engineer, programmer, problem solver, up to architect, tech, project and team lead, as required by the project at hand.

Published Titles

- **Tom Grennan VR** – PSVR – compositing tools and technology (VFX)
- **Wipeout Omega Collection** – PS4 – online consultant
- **Joshua Bell VR** – PSVR – additional audio support
- **DRIVECLUB VR** – PSVR launch title – principal programmer, acting producer
- **DRIVECLUB Bikes** – PS4/PSN – server lead
- **DRIVECLUB PS+ Edition** – PS4/PSN – server lead
- **DRIVECLUB** – PS4 – server programming, webservice client
- **SmartAs** – PSVITA – leaderboards, server infrastructure, webservice client
- **Wipeout 2048** – PSVITA launch window title – leaderboards, server programming and maintenance, webservice client
- **MotorStorm Apocalypse** – PS3 – client/server additional programming, networking
- **MotorStorm Arctic Edge** – PSP – server lead
- **Wipeout HD Fury DLC** – PS3/PSN – game lobby, leaderboards
- **MotorStorm Pacific Rift** – PS3 – additional server programming
- **vip.motorstorm.com** – official MotorStorm community portal – project technical lead
- **Wipeout HD** – PS3/PSN – game lobby, web community, leaderboards
- **Wipeout Pulse** – PSP – game lobby in-game community, web community (www.wipeout-game .com)
- **Formula One Championship Edition** – PS3 launch title – lobby and front-end, community, leaderboards, build tools
- **F1 06** – PS2/PSP – internal build tools, unreleased online services
- **Wipeout Pure** – PSP launch title – plug-ins, DLC infrastructure, DLC playstation.com integration
- **Formula 1 2005** – PS2 – online testing tools

Knowledge

Programming and scripting languages

- **Recently: C++, Go**, Bash, PowerShell, Python, C#, Lua, Rust
- **Historically:** Elm, F#, Ruby, Erlang, C, JavaScript, Scala, Java, SQL, Julia, GLSL, ShaderLab, Pascal/Turbo Pascal/Delphi, Assembly (80x86, Z80, 6510, PowerPC), PHP, Perl, BASIC/Visual BASIC/VBA dialects, MATLAB, Emacs LISP, FORTRAN, XSLT, various DSLs

Platforms and targets

- **Recently: PlayStation platforms** (PS5, PS4, PSVR, PSVITA, PS3, PSP, PS2), **MS Windows**, **Linux** (Ubuntu/Debian/Devuan, CentOS/RedHat/FC, Amazon Linux, other)
- **Historically: Unix** (Sony/News OS, Solaris, SysV, HP-UX, AIX), Arduino, Apple macOS, Android, Other embedded systems (Nortel, Cisco)

Tools and methodologies

- **Git**, **Perforce**, Subversion, CVS, AccuRev, AlienBrain, Mercurial
- Cross-platform and embedded development (PC/Console/Mobile/MCU, Linux/Windows)
- **Proprietary engines**, **Unity**, **Unreal Engine**, ECS model
- **Amazon AWS**, EC2, VPC, EKS/Kubernetes, Docker, OpenStack/Eucalyptus, Google AppEngine
- SONY proprietary networking technology: **PSN**, PSS Game Analytics, OTG Turbine, sceRudp (legacy: SCE-RT, Medius, DME, SVO, DTE, ActiveCommunity, OTG-S/C3, OTG Telemetry), replication model, rollback model
- **TCP/IP**, **HTTP**, **UDP**, Berkeley sockets, TLS, **rUDP**, other internet protocols
- **OOP/OOD**, FP, Actor model, Guava, Akka, OTP
- **Agile** (SCRUM, Kanban and Lean variants), **TDD**, BDD
- **CI** with Jenkins/Hudson, Travis CI, Sbt, Ant, Maven, Nexus, Bintray, Ivy, CruiseControl, SCEE BuildServer, SIE Imogen; exposure to Argo CI

- **JetBrains IDEs** (Rider, CLion, PyCharm, RustRover, …), **Visual Studio**, ReSharper, Visual Assist, **Eclipse** JDT, Scala IDE, CDT, RustDT, Corrosion, ErlIDE, Emacs, Visual Studio Code, NetBeans IDE, Xcode, MonoDevelop, Delphi/Borland RAD tools, Unix build tools, Cmake, premake, Android ADK
- **IaC**, Chef, Ansible, automated provisioning and configuration; exposure to Terraform, CloudFormation, CDK, Helm
- VirtualBox, Vagrant, VMWare, FreeVSD, WSL
- Apache Cassandra, CouchDB, SimpleDB, NoSQL; exposure to DynamoDB, ElasticSearch, Redis
- Tomcat, Jetty, Netty, JBoss AS, Jetspeed2, Spray, Spring, Magnolia CRM, ProtoBuf, Thrift, JMX, SNMP, GridGain, JGroups
- Apache2, Haproxy, Postfix, Sendmail, Qmail, freeRadius, iptables, BIND, other
- RabbitMQ/AMQP, JMS
- Postgresql, MySQL, Oracle, Sqlite, OR mapping tools (Hibernate, iBatis, EJB, JDO)
- Automated test tools (SIE DTE, other proprietary technology)
- Nuke (VFX and film editing software)
- Jira, Confluence, Miro, GitHub, Helix Swarm, MS Office, Outlook, Teams, Google Docs
- Cross-team on-site/off-site coordinated development and deployment across multiple timezones

Other interests and experience
- Team interactions and leadership, methodologies and processes, industrial automation
- Computer graphics
- Audio and DSP
- Mixed Windows-Linux/UNIX IP-based networks
- Civil engineering/CAD environment and water resources

Personal

Qualities and traits
- Open-minded, versatile and fast at learning
- Resourceful and tenacious problem solver
- Extremely goal and outcome oriented
- Open and honest communicator
- Enthusiastic yet able to manage risk in challenging projects
- Creative and willing to share ideas and solutions

Nationality
Dual national British and Italian. Born in Cagliari (Sardinia, Italy), naturalised British in 2013

Languages
- Italian and English: fluent
- Spanish: basic
- Japanese: rudimentary

Availability
At risk of redundancy since PlayStation London Studio is classified as "at risk of closure"; under consultation until 31/05/2024. Projected earliest start: June 2024

Relocation/Commuting
- Working from home in Liverpool, full remote, connected to the SIE London Studio office via Cisco Meraki hardware VPN
- Prioritising roles offering in-office or hybrid model (3-4 days a week) in Liverpool central but will consider full remote roles in UK and EU

Driving licence
UK full driving licence

Extra-curricular interests
Videogames, technology, woodworking, international politics, photography, travelling, animation and anime, writing and poetry, piano and keyboards, western and eastern martial arts, baroque music, comics, books and literature, trying new things

History

2021-2024

Principal Network Programmer at Sony Interactive Entertainment PlayStation London Studio (remote) -– at risk of closure

- Server architecture and microservices development (Go) on AWS EKS – following CNCF principles and guidelines
- Client netcode to support rollback-based P2P cross-platform (PC/PS5) communcation
- SIE proprietary relay server maintenance, cross-compilation and deployment (EKS, Agones), latency optimisation
- Evaluation and integration of SIE and third party libraries and frameworks into in-house engine (PlayFab, …)
- Engine runtime maintenance, bug fixing, utility and test features (logging, configuration, TSan, ASan, Test Coverage, Static Analysis)
- Headless lightweight game runtime and scripted input emulation for unattended, automated, test bots

Unreleased titles: Unannounced co-op multiplayer modern fantasy combat game

2017-2021

Principal Programmer at Sony Interactive Entertainment PlayStation Studios (formerly Worldwide Studios) IVT - Immersive Video Technology (Liverpool, UK)

- Stereoscopic and pseudo-volumetric video and still capture (custom camera sets) and replay of live subjects on PSVR
- VFX image processing and video compositing tools for PSVR real-time live action media
- Scientific data processing and visualisation in VR (R&D)
- Legacy Driveclub game servers maintenance and operations, online consulting to internal teams

Released titles: Joshua Bell VR, Wipeout Omega Collection, Tom Grennan VR
Announced title: Climate Station, an immersive climate-change explainer and data visualisation app (R&D and prototypes)
Patent applications (as co-inventor): P115798US, P116259US, P116260US, P117350US, P118094US

2016-2017

Principal programmer at Sony Interactive Entertainment Worldwide Studios ITG - Immersive Technology Group (Liverpool, UK)

- Maintenance and development of the Driveclub/Driveclub VR franchise servers
- Research on Social VR technology and applications
- Experimental hardware for VR applications

Released games: DRIVECLUB VR

2014-2016

Online Server Lead at Sony Computer Entertainment Europe Evolution Studios (Runcorn, UK), terminated due to Evolution Studios closure

- Resolve structural issues which led to Evolution Game Server's severe performance problems at launch
- Plan, design and develop server strategy and platform
- Facilitate and organize co-development of online services with SCEE internal teams and Third parties
- Bug fix, maintain and improve Driveclub/Driveclub PS+ edition servers

Released games: DRIVECLUB Bikes, DRIVECLUB PS+ Edition

2012-2014

Principal Online Server Programmer at Sony Computer Entertainment Europe Evolution Studios (Runcorn, UK)

- Develop components of the studio's custom game server platform, Evolution Game Server for Driveclub

Released games: DRIVECLUB

2012

Lead Server Programmer at Sony Computer Entertainment Europe Studio Liverpool (UK); terminated due to Liverpool Studio closure

- Responsibility for all strategy, design and R&D of server/back-end technology
- Wipeout 2048 servers maintenance, troubleshooting

2010-2012

Senior Server Programmer at Sony Computer Entertainment Europe OTG - Online Technology Group (London, UK)

- Internal SONY studios expert advice as consultant
- Develop customized server-side solutions for internal studio projects
- Research and develop reusable components and services for integration within multiple game titles
- Facilitate technology and knowledge sharing
- Evaluate, adopt and integrate third party technologies
- Advocate adoption of industry best practices in an agile environment
- Support productionisation and post-launch stages of Online games

Released games: Wipeout 2048 (Studio Liverpool), Smart As… (XDEV/Climax)

2004-2010
Senior Programmer at Sony Computer Entertainment Europe Studio Liverpool (UK) with a specialization as a Server Programmer
- Evaluate, adopt and integrate third party technologies and technology prototypes
- Coordinate the SCEE Northwest Studio Server Group reporting to the SCEE Northwest Studio Group Online Lead
- Mentor junior staff
- Act as the deputy Online Lead in the lead's absence
- Act as the point of contact between game teams and server deployment, game integration and production teams off-site
- Offer consultancy and support on all aspects of online game development to internal and external development teams
- Develop and dimension reliable and scalable systems for production-level game servers, from design to production
- Develop client/server technology for PS3 and PSP games
- Develop game community websites for the SCEE Northwest Studio Group franchises (MotorStorm, Wipeout) as the technology lead

Released titles: MotorStorm Arctic Edge, Wipeout HD Fury DLC, MotorStorm Pacific Rift, vip.motorstorm.com, Wipeout HD, Wipeout Pulse, www.wipeout-game.com, Formula One 2006/Formula One Championship Edition, Wipeout Pure, Formula 1 2005

2004
Lead developer at OptiOne Srl (Villacidro, Italy)
- Main developer of OptiCAD, a CAD/CAM/optimisation software suite for specialized industrial glass-cutting machines

2001-2003
Experienced analyst, developer, system and network manager at Energit (Cagliari, Italy) during start-up phase
- E-commerce, customer care, CRM
- Products and services R&D
- Network/server administration, 24/7 1st and 2nd line emergency support, troubleshooting, TCP/IP networking
- Web hosting, domain registration

Notable products: Energit Areaserver – domain registration, virtual and dedicated hosting, Energit Virtual Power Plant

1998-2000
Founder at DOT Srl (Cagliari, Italy). Engineering, environmental and water resources, graphics/CAD; **lead developer** for GridProcessor; CAD/data operator and programmer on engineering-related projects
- Network and system administration at customer's sites
- Web programming and web design, local ISP services
- Engineering CAD applications, water resource management applications. Lead developer of the "Backrain" (self-funded) software project to extract synthetic river networks from a digital elevation model
- Computer science training classes to 6th and 7th grade students

1997
Freelance part-time programmer; civilian service (Cagliari, Italy)
- Compulsory civilian service (in substitution of military service) at the Juvenile Prison of Quartucciu (Italy), and at the Juvenile Justice Centre of Sardinia. Administrative assistant and office automation specialist
- Developer of Profili Win, a CAD application tailored to aqueduct and water pipe projects design (part-time)
- Database application for maintenance of aluminium production tools, for Alcoa (part-time)

1993-1996
Programmer at *Ente Autonomo del Flumendosa* (Cagliari, Italy) on the *New Survey about the Surface Hydrology of Sardinia* (water resources management, engineering, scientific, physics); **freelance web and database app developer** for local firms

1992
High school diploma – Industrial Technical Institute - Computer Science (Cagliari, Italy)

1990-1991
Freelance junior analyst programmer part-time (Cagliari, Italy). Developed bespoke MS-DOS database application for the special delivery of clothes, developed bespoke MS-DOS CAD application for aluminium cut optimization of window frame designs

References will be provided on demand

Education

2000
Diploma Universitario in Informatica from the University of Cagliari (Italy), a three -years university-level degree in Computer Science with a final mark of **70/70 cum laude**

1992
Diploma di Maturità Tecnica Industriale specializzazione Informatica obtained from *Istituto Tecnico Industriale "Dionigi Scano"* (five years technical high school, specialisation in Computer Science, Italy) with a mark of **60/60** in the final exam