DAVID FISCHER

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RESEARCH INTERESTS

Distributed & cloud computing, P2P networking, multimedia content processing, GNU/Linux systems administration, DevOps and automation, graphical programming, embedded systems

PROFESSIONAL EXPERIENCE

hepia University of Applied Sciences, telecommunications laboratory   Since 05/2008
Research Assistant
→ Design & deployment of the laboratory's network and servers
→ Applied Research & Development as software engineer
→ Up to Master degree laboratories experiences preparation

hepia University of Applied Sciences, numeric systems laboratory   01/2007 – 03/2007
Research Assistant
→ Applied Research & Development as software engineer

TPG Geneva Public Transports   03/2003 – 06/2003
Software engineer (during my early studies)

EDUCATION

Master of Science HES-SO in Engineering   09/2010 – 03/2013
Orientation : Information and Communication Technology
Advisor : Prof. Andrés Revuelta, project manager : Mr. Bram Tullemans EBU/UER
Master Thesis : Open-Source Cloud Infrastructure for Encoding and Distribution (OpenStack, JuJu, automation)
Semester Project : DASH Open-Source Demonstrator (RFCs, apache, ffmpeg, VLC)
HES-SO (University of Applied Sciences Western Switzerland)

Bachelor of Science HES-SO in Telecommunications   10/2003 – 01/2007
Diploma work: Vision Stéréoscopique (see Ra&D projects)
Honors : Best results in telecommunications (mention très bien)
Sponsored by the Bank Pictet & Cie
EIG (Ecole d'Ingénieurs de Genève), HES-SO

Maturité technique   2000 – 06/2003
Filière méchanique / électricité
Honours : Best results in mechanic./electricity
EIG (Ecole d'Ingénieurs de Genève), HES-SO

COMPUTER SKILLS

Programming Languages

Strong Mono C# .NET, Bash Shell
Advanced C/C++, Python
Good experience with VHDL, assembly language (x86, ARM, PIC)
Knowledge of Java, XHTML/CSS, PHP, SQL, NoSQL (MySQL, Microsoft SQL, MongoDB)
Basic experience with Ada, Matlab, Java RMI, Esterel, Promela
Design patterns, unit testing, MVC, UML, XP programming, GIT, SVN/TRAC, Sphinx (reStructuredText)
Standards & formats, MPEG-DASH, MPEG2-TS, H.264, reST, JSON, SVG, XHTML+CSS, XML, DTD, XSD

Programming Topics

Movies content analysis with libAV library, multimedia content streaming with VLC library
P2P network handling (server's tree construction algorithms), communication between P2P nodes
MPEG streams analyze and partially overlapped streams patching (seamless source switching)

Objects detection and recognition with Intel's OpenCV, camera motion estimation with Inria's Motion2D library
Distributed tasks scheduling and queuing with Celery, RabbitMQ, MongoDB
Graphical programming with DirectX, OpenGL, SDL, Cairo
RFC implementation (SMPTE 2022-1 RTP FEC)

IT / Networking

Advanced knowledge of the IP stack and protocols
Ubuntu/Debian GNU/Linux servers administration & automation including Shell & Python scripting
Cloud-related technologies (OpenStack, JuJu, MAAS), virtualization (VBoxManage, Proxmox VE)
HA of services, clustering (Heartbeat, DRBD), cloning (DRBL+Clonezilla server), monitoring (Nagios)
IP services DNS+DHCP (DNSMasq), files sharing (NAS storage, Samba/Swat, proFTPd, GlusterFS)
Automated multi-site incremental backups and synchronization (LVM, rsnapshot/rsync, rdiff-backup, svn)
Software projects versioning and management (svnserve + apache2 dav_svn, TRAC)

Operating Systems

Over 7 years Windows programming with tools like Visual Studio, CodeBlocks, DevCpp, etc.
Over 7 years GNU/Linux programming with tools like Mono, Bash, gcc, Python, Sphinx, GIT, SVN, TRAC, etc.
Experienced on Debian/Ubuntu as user and system administrator

RA&D PROJECTS

OSCIED : Open-Source Cloud Infrastructure for Encoding and Distribution (github.com/ebu/OSCIED)
    System administrator, software architect & engineer / Python Bash PHP   Since 09/2012
    Media assets transcoding and delivery platform designed to scale services on multiple clouds/clusters.
    Company : Partnership of the European Broadcasting Union (EBU/UER) and hepia engineers school
    End-users : Members (broadcasters) of the EBU

GaVi : Guide Audiovisuel Interactif (CTI Ra&D project 600'000 CHF)   Since 01/2011
    Software engineer / Python Java (Andoid)
    Client : In/out-door guide embedding a map with museum-related geo-tagged media assets.
    Server : Provide editors with a web front-end to ingest informations and assets (audio, video, text, …).
        Host a RESTful API for client devices to ask for assets and streams.
    Company : Partnership of schools (hepia, HEAD, Geneva University) and arx iT SA
    End-users : Visitors of the Museums (Botanic Garden & MHS Geneva)

HbbTV : (HES-SO RCSO-TIC Ra&D project)   07/2011 – 08/2011
    Software engineer / Integrate various projects about the Hybrid TV standard into a common demonstrator.

EDGI : European Desktop Grid Initiative (edgi-project.eu)   09/2011 – 11/2011
    Software engineer / Java bridge for the XtremWeb-CH platform

Memoria Mea 2 : A PIM system for multimedia content (www.memoria-mea.ch)   11/2009 – 03/2010
    Software engineer / C++ Bash / Faces (objects) recognition and motion estimation on movies, indexing.

VadeSe 2 : Video on Demand and Security (www.vadese.org)   05/2008 – 12/2010
    Software architect & engineer / C#
    Network-friendly VoD platform using batching and patching of multicast streams to reduce throughput.
    Server-friendly VoD platform using P2P-delivery of RTP streams and seamless source switching.

Vision Stéréoscopique, part of the SeeColOr project   09/2006 – 03/2007
    Embedded system engineer / VHDL C++ / Video stage of a device to convert images to sounds in real-time

PERSONAL PROJECTS

You may find most of my personal projects GNU GPLv3 licensed on GitHub (github.com/davidfischer-ch).
LogicielsUbuntu Ubuntu setup and command line useful scripts (utilities)
pyutils   Some Python utility functions
smpte2022lib   Optimized and cross platform SMPTE 2022-1 FEC library in C, Python, Java
        → Refered by Luca Ricciuti Diploma work, Jérémie Mathieu Rossier Master PA work

LANGUAGES

French   Native language
English   Good knowledge (level B2 of European Standard for Language)
German   School knowledge (level A2)

Leisure and Personal Interests

Computer Science (programming, networking) | Free-Libre Open-Source movement (GNU/Linux, …)
Science and nature | bike cycling | fitness | ski | tricopter | photography | video games | books | travel

Referees

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