Mirko R Palmer

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I'm a Ph.D. graduate of Prof. Feldmann from the Max Planck Instutute for Informatics in Saarbrücken Germany. I wrote my Thesis in Video Streaming while having a strong background in Networking and Software Systems. In my free time, I enjoy tinkering with hardware, writing code, and running my own network infrastructure. I like to continuously challenge myself to master new things. I know my way around cloud systems but my heart beats for bare metal. This love is reflected in my most favourite pet-project in which I fiddle around with my own CPU architecture.

Experience

PhD / 2018 – 2023 at Max Planck Institute in Saarland

Systems Researcher (Continuation of Position in Berlin)

- Software Development with C++
- Design & Implementation of Adaptive Streaming Protocol
- Extending the QUIC Transport Protocol
- Design & Implementation of Automated Software Test Environment in Python
- Setup & Maintainance of Server Infrastructure
- Software Performance Evaluations
- Supervising and Guiding of Students
- Collaboration in International Teams

PhD / 2015 – 2017 at Technische Universität Berlin

Systems Researcher

- Software Development with C and C++
- Extending the MPTCP Transport Protocol (Path Manager)
- Implementation of Linux Kernel Module
- Working with existing C Codebase for Multi-Access
- Software Performance Evaluations
- Supervising & Guiding of Students
- Collaboration in International Teams

Python Developer / 2014 – 2017 at "Footbonaut"

- Redesign & Development of Backend Control Software for soccer training system
- Design & Implementation of Backend Emulation and Customized Testautomation Software

Publications

ACM CoNEXT / 2021
"VOXEL: Cross-layer Optimization for Video Streaming with Imperfect Transmission"

ACM EPIQ / 2018
"The QUIC Fix for Optimal Video Streaming"

arXiv:1804.08484 / 2018
"Socket Intents: OS Support for Using Multiple Access Networks and its Benefits for Web Browsing"

Skills

Software Development

with: Git, Ansible, Vim, Zsh/Bash, (Eclipse)

on: Linux, macOS, (Windows)

in: C, C++, Python, Shell Scripts

Networking

Application Layer
HTTP Adaptive Video Streaming

Major Protocols (e.g.: HTTP(S), DNS(SEC), DHCP)

Transport Layer
UDP, TCP, MPTCP, QUIC, and Congestion Control

Network Layer
IP (v4/v6), Switching & Routing, NAT

Data Link Layer
MAC protocols for IEEE 802.3 Ethernet and IEEE 802.11 Wireless LAN, VLAN

Physical Layer
Ethernet PHYs & some RF Modulations

Video Streaming

Adaptive Streaming Protocols (MPEG-DASH, HLS)

Codecs & Containers (H.264, H.265, MP4)

Video Encoding with ffmpeg

Quality Metrics (e.g.: SSIM, VMAF)

Hardware

Microcontroller
PIC16/18, ARM Cortex-M4, RP2040, (Raspberry Pi)

CPU Architectures
8008/8080, 6502, Z80, 68000, ARMv7

Peripherals
SPI, I²C, UART, 8259A

Soft Skills

German & English (native / fluent)

Independent- & Teamwork

Problem Solving

Academic Writing & Presenting

Education

PhD / 2023 - (Defended with Great Honors)
In Computer Science at Max Planck Institut for Informatics
"Towards Enabling Cross-layer Information Sharing to Improve Today's Content Delivery Systems"

Master of Science / 2015 - Graduated with 1.7
In Computer Science at Technische Universität Berlin
"Implementation and Evaluation of Multi-Access Policies for MPTCP Path Management in User-Space"

Bachelor of Science / 2012 - Graduated with 2.5
In Computer Science at Technische Universität Berlin
"Distributed DHCP and DNS in a Wireless Mesh Network Based on DHTs"

Teaching

University Course Organizer / 2021
"Data Networks"
Course about the structure and architecture of the internet including basics of internet communication.

University Course Co-Organizer / 2017
"Routerlab"
Hands-on course teaching IP networks, routing protocols, traffic shaping, etc. on Cisco & Juniper hardware.

University Course Co-Organizer / 2016
"Wirelesslab"
Hands-on course teaching how to setup, debug, run and measure 802.11 networks on a Testbed on OpenWRT.

Student Assistant / 2014-2015
Assisting PhD researchers with their work on Multi-Access.

My Infrastructure

- Proxmox Cluster with Linux VMs & LXCs
- Storage & Backup Servers with ZFS
- Site-to-Site & Remote Access VPN
- Authoritative DNS with IPv6 & DNSSEC
- OpenWRT based MultiWAN with MPTCP
- Web Server with HTTPS
- Prometheus monitoring running as Docker Stack

Miscellaneous

Hobbies (Besides the mentioned tech hobbies)
Walking in nature, taking care of my many indoor plants, traveling, crocheting (amigurumi)

Possible Start Date
As soon as possible or by arrangement.

References
Will be disclosed upon request.