Software Developer – Oleg Shalaev

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Introduction

I am experienced in Physics (15 years) and programming (9 years).

- M.S. in Physics with Distinction, St. Petersburg Technical University (Russia).
- Ph.D. in Physics at SISSA (Italy).

Programming Achievements

Website builder

I created a website constructor somewhat similar to MediaWiki.
See www.chalaev.com for more information.

Dynamic web pages

Open source becomes essentially closed when the code is huge; it is hard to fix bugs in React or customize it to specific business needs. I wrote `DB.js` – tiny (5.8k) and fast JavaScript library for creating dynamic web pages, see db.leanws.com.

Fully automated website testing

I can test websites fully automatically by modelling human behavior, saving screenshots and web pages code and comparing the latter to templates. See the video link on www.chalaev.com

Tools

- **Ruby** on **Rails** 2022-2026: dental insurance website.
- **Common LISP + Clojure:** (i) LISP for website back end in 2020-2022, (ii) Clojure for 10% website back end in 2022-2026, (ii) LISP code generating LaTeX dental provider catalogues in 2022-2026.
- **Dynamic web-development:** I used `KnockoutJS` in 2017-2020, later replaced it with my own code, see db.leanws.com
- **PostgreSQL:** Worked with big tables containing info about numerous healthcare providers and members. Sometimes I updated long (150+ lines) SQL queries.
- **GNU/Linux + SHELL:** I use linux since 1999, and I can configure a Debian server (`nginx`, `exim4`, `dovecot`, `PostgreSQL`, `systemd`).

- **Perl**: I used Perl for fully automated website testing. See also my wifi-switcher: github.com/chalaev/wifi-switcher
- **C++:** I used it during my University career for numerical calculations. Simple classes, no advanced features.
- **Python and AI**: In 2017-2020 I used Python to power back end of a web server. In 2025 I used it for "AI Dojo" AI course provided by the UHG. As a final test assignment, I wrote python code for medical claims' adjudication.

Employment history

- Programming
  - 2022-2026: software developer at United Healthcare – updating and maintaining dental insurance website. Mostly back end, occasionally front end. Back end technologies: Ruby on Rails, PostgreSQL, BASH scripting, occasionally Common Lisp, Clojure, LaTeX, plain TeX.
    Front end technologies: vanilla JavaScript + jQuery.
  - 2017-2022: founder and full stack developer at Lean Web Solutions.
    20 Office Park Way, Pittsford NY. Debian (linux) system administration: exim4, nginx, dovecot, iptables.
    Back end: first Python, then Common Lisp.
    Front end Programming: First jQuery, then KnockoutJS, then switched to my own tool db.leanws.com
- Theoretical Physics of Solid State
  - 2013-2016: research scholar at the University of Rochester.
    525 Computer Studies Bldg., P.O. BOX 270231, 14627-0231 Rochester NY.
  - 2012-2013: research scholar at CSUN.
    Live Oak Hall, CSUN, 18111 Nordhoff Street, 91330 Northridge CA.
  - 2008-2012: research scholar at the University of Missouri.
    223 Physics Bldg., University of Missouri, 65211-7010 Columbia MO.
  - 2003-2008: research scholar at the University of Basel (Switzerland) 223 Physics Bldg., University of Missouri, 65211-7010 Columbia MO.

  Spin transport in semiconductors – both analytical and numerical calculations.
  Software used: maxima, Mathematica, C++, LISP, LaTeX, ImageMagick, emacs, linux.

Natural languages

English (fluent), Russian (native), German (Goethe Institute B2 certificate), Italian (CILS C1 certificate).

Physics articles

For articles and citation indices, visit my Google Scholar profile:
https://scholar.google.com/citations?user=9zdm3gEAAAAJ