

# David Soukal

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## Objective

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Software engineering position with a strong research component

## Summary of Qualifications

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- Extensive mathematical and computer science background
- Over 15 years of C/C++ and JAVA programming experience (VISUAL STUDIO, KDEVELOP); efficient with MATLAB, R; more than 10 years of experience with LINUX
- Strong knowledge of statistics, algorithms, computer graphics, and optimization theory; taught practicum on Mathematical Analysis for two years
- Chief developer of SecureStego—a proof-of-concept application for the U.S. Air Force Laboratory; more than 70,000 lines of code

## Education

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- 2001–2005 PH.D. in Computer Science, State University of New York at Binghamton (graduation expected in December 2005), GPA 4.0
- 1995–2000 M.S. in Computer Science, School of Nuclear Sciences and Physical Engineering, Czech Technical University, Prague; degree earned at the Department of Mathematics
- Related graduate courses:** Mathematical Analysis (4 semesters), Algebra, Statistics (4 semesters, dissertation in Stochastic Texture Modeling), Estimation Theory, Optimization Theory, Complexity Theory, Image Processing, Digital Signal Processing, Data Compression, Algorithms, Programming Languages, Computer Architecture, Computer Graphics (2 semesters), Database Systems, Operating Systems
- Sit in the following courses:** Programming Design Patterns, Cryptology

## Relevant Experience

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### Programming Skills

- **OOP:** C/C++ — more than 15 years experience with various compilers (GNU GCC, MICROSOFT VISUAL STUDIO, WATCOM C++); in-depth knowledge of the C++ Standard Template Library; thorough knowledge of JAVA—my language of choice
- **Scripting languages:** experienced with HTML, XML, ECMA (JAVA) SCRIPT, PYTHON, and VISUAL BASIC; dynamic web languages: PHP, ASP
- **Web design:** assessed project requirements and participated in platform-selection and decision-making process; implemented internet/intranet based information systems for the Department of Justice of the Czech Government, the Municipal Authority of Prague, and Panasonic Czech Republic
- **Internet Protocols:** excellent knowledge of HTTP, (X)HTML, XML, etc.
- **Database systems:** skilled in relational algebra and its implementation, the SQL language; worked with MYSQL, MS SQL, ORACLE, and MS ACCESS
- **Other:** working knowledge of OPENGL, implemented 3D data visualisation tool; general knowledge of Intel 80x86 assembly language

### Other Relevant Computer Skills

- Efficient with MATLAB, R, MUPAD, ADOBE PHOTO PAINT, and COREL DRAW SUITE
- Very solid knowledge of UNIX/LINUX based systems; worked with linux since 1995
- Installation and management of a small network of WINDOWS and LINUX based computers; managed network of 10+ computers
- Experienced with computer typography: LATEX, LYX, SCRIBUS

### Research

- Worked in a team of renowned researchers and communicated with consumers in the U.S. Air Force Laboratory
- Developed and maintained complex source code: SecureStego—a proof-of-concept application for the U.S. Air Force Laboratory; more than 70,000 lines of code
- Co-author of over 15 research papers; presented papers at several international conferences
- **Steganalysis:** developed a detection algorithm for PMK steganography and secret message length estimation
- **Steganography:** Perturbed Quantization—secure high-capacity adaptive steganography, which is a step towards provably undetectable steganography; Maximization of the embedding rate of Wet Paper codes for steganographic applications
- **Forensic analysis:** participated in research and practical evaluation, and implementation of fast Stego-key search; developed and implemented a detection technique of copy-move forgeries in digital images
- Developed and implemented one of the first detectors of PMK steganography
- Won Algorithms course final project with an implementation of the Shell's algorithm—an approximation algorithm for the Traveling salesman problem

### Work History

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- 2001–present **Research Assistant** working at the Digital Data Embedding Laboratory funded by the Research Foundation, Computer Science Department, State University of New York, (<http://dde.binghamton.edu>)
- 2000–2001 **Chief Software Engineer** at Kaktus Software, Czech Republic, (<http://www.kaktus.cz>)
- 1999–2000 **Graduate Assistant** at Department of Mathematics, School of Nuclear Sciences and Physical Engineer, Czech Technical University

*References and a list of publications available upon request*