3518 FREMONT AVE. N, PMB 452, SEATTLE, WA 98103
PHONE 206-930-6829 • E-MAIL CHARLES.F.ROSE.III@GMAIL.COM
WWW.CFR3.COM

CHARLES F. ROSE, III, PH.D.

OBJECTIVE

I am technologist who is most satisfied when working on technically and intellectually challenging engineering problems. I have been both a key individual contributor and a technical leader. I find satisfaction in both roles and a challenging problem requiring me to do either will pique my interest.

PROFESSIONAL EXPERIENCE

2006 - present   Adobe Systems, Inc.   Seattle, WA

Senior Computer Scientist 2

- Developer in Digital Imaging group. At Adobe, my primary areas have been graphics language compilation (PixelBender), GPU image processing, and optimized host-side image processing for both desktop and mobile. *Compiler-construction, OpenGL, MacOSX, iOS, heterogeneous computing, C++, stl, boost, ActionScript, OpenGL/ES2, OpenCL, C++/AMP, DirectX, robust cross-platform coding*

1995 - 2006   Microsoft Corporation   Redmond, WA

Software Development Engineer (2000-2006)

- Developer on HLSL compiler within the DirectX team. My specialty was mid-level optimization and value-range propagation infrastructure. *Compiler-construction, DirectX, GPU*
- Senior developer on next generation authorization team developing APIs for rich delegated policy expression for intra- and inter-system resource control. *C++, C#, cryptography, declarative techniques*
- Senior developer on adding elliptic curve cryptography support for Windows Vista smartcards. *Smartcards, C, ECC*
- SDE Lead for the XrML team working on managed and native support of XrML 2.x / MPEG ISO REL standard. Product is underway. *C#, DSig, XML, XPath, Schema, .NET, cryptography*
- A principal developer on the Windows Rights Management client-side security product, i.e. "lockbox". I developed a clean-room XML/XrML1.2 parser and license binder. I owned the surface area API development for the lockbox, so handled features such a license revocation, attestation, security environment setup, etc. *C++, XML, cryptography, DRM*

Research Software Development Engineer (1995-2000 + some research work since)

- Lead a research project to study uses of radial basis function (RBF) interpolated animation for use in high accuracy, real-time inverse-kinematics. Resulted in patent and publication. *C++, VB, Direct3D*
- Studied use of RBF interpolation for mesh-based skinning of linked characters along with Peter-Pike Sloan & Michael Cohen resulting in patent and publication. *C++, VB, Direct3D*
- Principal developer and primary researcher to study uses of RBF interpolation for use in real-time controllable animation which keeps artist's intent. Resulted in publications and a patent, which has issued. *C++, VB, OpenGL*
- Using BFGS non-linear optimization for stable motion capture analysis. *C++, VB, OpenGL*
- Worked for Brian Guenter to study use of torque-minimized animation for motion capture transitions. Resulted in publication and a patent, which has issued. *C++, VB, OpenGL*

EDUCATION

1992-1999 Princeton University (part time after 1995)   Princeton, NJ

Ph.D. Computer Science 1999

- Specialized in fast techniques for real time artist-directed animation using radial basis functions to set up *n*-dimensional control functions. See the "Professional" section of www.cfr3.com for details. Michael F. Cohen was my thesis advisor (and later my manager at Microsoft Research).

1988-1992 Trenton State College / TCNJ   Ewing, NJ

B.S. Computer Science 1992(with college honors and Summa Cum Laude)

PUBLICATIONS

Hong, Chen, Ziqiang Liu, Charles F. Rose, III, Ying-Qing Xu, Harry Shum, and David Salesin. **Example-Based Composite Sketching of Human Portraits.** *Non-Photorealistic Animation and Rendering 2004.*

Rose, III, Charles F., Peter-Pike Sloan, and Michael F. Cohen. **Artist-Directed Inverse Kinematics Using Radial Basis Functions.** *Eurographics 2001.*

Sloan, Peter-Pike, Charles F. Rose, III, and Michael F. Cohen. **Shape by Example.** *Interactive 3D Symposium 2001.*

Guenter, Brian and Charles F. Rose, III. **Derivations of the Balafoutis and Patel Dynamics Formulation.** *Microsoft Research Tech Report MSR-TR-2000-80, 2000.*

Cohen, Michael F., Charles F. Rose, III, and Peter-Pike Sloan. **Shape and Animation by Example.** *Microsoft Research Tech Report MSR-TR-2000-79, 2000.*

Rose, III, Charles F. **Verbs and Adverbs: Multidimensional Motion Interpolation Using Radial Basis Functions.** *Ph.D. Thesis, Princeton University, 1999.*

Rose, III, Charles F., Michael F. Cohen, and Bobby Bodenheimer. **Verbs & Adverbs: Multidimensional Motion Interpolation.** *IEEE Computer Graphics and Applications, Volume 18, Number 5 (1998).*

Bodenheimer, Bobby, Charles F. Rose, III, Seth Rosenthal, and John Pella. **The Process of Motion Capture: Dealing with the Data.** *Computer Animation and Simulation 1997.*

Rose, III, Charles F., Brian Guenter, Bobby Bodenheimer, and Michael F. Cohen. **Efficient Generation of Motion Transitions Using Spacetime Constraints.** *Siggraph 1996.*

PATENTS

Rose. **Optimization of staged computations**. *U.S. Patent 8442343 (Issued 2013)*

Archer, Rose. **Algorithm modification method and system**. *U.S. Patent 8396317 (Issued 2013)*

Paramasivam, Rose, McPherson, Perumal, Nath, Leach, & Pandya. **Abstracting security policy from, and transforming to, native representations of access check mechanisms.** *U.S. Patent 7882539 (Issued 2011)*

Dillaway, LaMacchia, Paramasivam, Rose, & Pandya. **Delegating right to access resource or the like in access management systems.** *U.S. Patent 7770206 (Issued 2010)*

England, Paramasivam, Kurien, Rose, & Pandya. **Certifying and grouping distributed objects.** *U.S. Patent 7664949 (Issued 2010)*

Paramasivam, Rose, & Payette. **Supporting statements for credential-based access control.** *U.S. Patent 7657746 (Issued 2010)*

Dillaway, Lafornara, LaMacchia, Malaviarachchi, Manferdelli, & Rose. **Revocation of a certificate and exclusion of other principals in a digital rights management (DRM) system based on a revocation list from a delegated revocation authority.** *U.S. Patent 7543140 (Issued 2009)*

Kostal, Paramasivam, Pandya, Cottrille, Ravula, Yarmolenko, Rose, & Zhong. **Format agnostic system and method for issuing certificates.** *U.S. Patent #7509489 (Issued 2009)*

Kostal, Paramasivam, Pandya, Cottrille, Ravula, Yarmolenko, Rose, & Zhong. **Extendable data-driven system and method for issuing certificates.** *U.S. Patent 7500097 (Issued 2009)*

Cohen, Rose, & Sloan. **Shape and animation methods and systems using examples.** *U.S. Patents 7091975, 7242405, 7420564 (Issued 2006-2008)*

Lafornara, Malaviarachchi, Manferdelli, Marr, Rose, & Serbus. **Enhancing digital rights management system security through policy enforcement.** *U.S. Patent 7376975 (Issued 2008)*

Bourne, Dillaway, Jacomet, Malaviarachchi, Parambir, Rozenfeld, Venkatesh, & Rose. **Issuing a publisher use license off-line in a digital rights Management (DRM) system.** *U.S. Patent 7370212 (Issued 2008)*

Rose, Sloan, & Cohen. **Interpolation using radial basis functions with applications to inverse kinematics.** *U.S. Patents 6856319, 7012609, & 7024279 (Issued 2005-2006)*

Rose, Cohen, & Bodenheimer. **System and method of multidimensional motion interpolation using verbs and adverbs.** *U.S. Patent 6462742 (Issued 2002)*

Guenter, Rose, Cohen, & Bodenheimer. **Generating optimized motion transitions for computer animated objects.** *U.S. Patent 5982389 (Issued 1999)*