CARL (MIKE) DANIELSEN

Residence: 847-438-0185   Cell: 708-287-2555   E-mail: miked1@ameritech.net

SUMMARY

Genius, technologist, who is able to envision the future and has a track record of making it happen. A quick thinker who is able to provide elegant solutions to complex problems. Background in research and development of new technologies in video, graphics and virtual worlds. Broad experience in hardware and software design, system architecture and integrated circuit design. Demonstrated leadership in technical innovation. Creates team loyalty and enthusiasm. Excellent presentation abilities, communications skills, team player. Motivated, self-starter. I am someone who can make a real difference and can deliver new solutions that have real impact.

PROFESSIONAL EXPERIENCE

COGNIZANT ACADEMY   2009 to 2010

Leader in Virtual World development. Created virtual learning center in 3D virtual world with over 70 interactive exhibits. Responsible for all training, leadership and collaboration for global team. Provided scripting in LSL (Linden Scripting Language), PHP, JavaScript and MySQL. Learning center provides state of the art online learning for over 700 professionals.

MOTOROLA, Schaumburg, Illinois   1984 to 2008

A leader in the design and manufacturing of high technology communications products for industrial, commercial and consumer markets.

Primary role: Developer of Multimedia technologies including video communications, avatars and virtual worlds. Integrated circuit design, hardware and software design and system architect.

Distinguished Member of the Technical Staff (1996-2008)

Virtual World and Avatar Program Manager (2007 to 2008)
Provided thought leadership and guidance to many different parts of Motorola. Recognized as the authority and a visionary in the area of Virtual Worlds within Motorola.

- Created collaborations among various project teams across Motorola to provide advanced solutions in virtual worlds and avatar based communications.
- Developed use cases for enterprise and health industries utilizing virtual worlds.
- Created a working virtual prototype of a virtual warehouse in Second Life to demonstrate the concept of virtual experience prototyping. Developed new ways to solve problems.
- Managed company wide portfolio of patent disclosures and filings in the area of avatars and virtual worlds. Avatar and virtual world patent filings and issues grew ten-fold over this time.
- Represented Motorola to outside corporations in the area of virtual worlds and was an active member of the Virtual World Interoperability Forum. Presented Virtual World trends and concepts to Vodaphone (Italy), Link Dot Net (Egypt), Turner Broadcasting, Stanford University and other organizations. Resulted in new projects started with external business partners.

Avatar Project Lead (2004 to 2007)
Provided project leadership, software architecture and development. Developed collaborations internal and external to Motorola. Demonstrated technology and benefits of avatars and virtual worlds.

- Led the development of an Avatar Framework which demonstrated the feasibility of avatar facial animation to enhance audio communications by emotive expressions and lip sync. Demonstration of the first new communications medium in 80 years.
- Integrated framework with real time speech analysis and text to speech engines.
- Created avatars on request for high level presentations for corporate CEO and VP's.
- Used Avatar Framework to enhance kiosk developments.
- Created an efficient programming interface that allowed existing and new applications to easily add avatar functionality.

- Led development of Avatar Chat demo which provided two way avatar interactions over a 3rd Generation cellular voice call. The demo that excited all those who saw it and was the first call of its type in the history of telecommunications. Avatar Chat was scheduled for product development at the end of 2007.

Media TV Project Lead (Feb. 1996 to Dec. 1999)
System architect and project lead of Media TV chip. This was a MPEG-4 high definition video decoder plus integrated 3D graphics, ideally suited for interactive TV.

- Led development of a high end MPEG-4 video decoder and graphics processor.
- Provided expertise in video chip architecture and methodology. Refined the architecture developed from Cheetah (see below) and applied it to several video chips in development including the chip which powered Motorola's first mobile video phone.
- Developed requirements.
- Created architecture and modular specifications.
- Managed a team of six engineers.

Principal Staff Engineer (1995-1996)

Cheetah Project Lead (Jun. 1994 to Feb. 1996)
The Cheetah project was the development of Motorola's first successful two way video communications chip. The chip enabled video communications over normal telephone lines. A working prototype was demonstrated exactly one year after the project team was formed and 3 months later, first silicon was received and was fully functional. This was an exceptional achievement considering the time constraints and complexity of functionality provided. When it was completed the chip provided best in class performance at typical power levels.

- Project leadership. Coordinated development between Schaumburg and Chicago teams. Managed a team of 11 engineers. Half of the team had never designed an integrated circuit before.
- Developed new design methodology combining high level synthesis and rapid design prototyping which greatly reduced cycle time and simplified design. The design methodology was used in future projects.
- Developed new architecture that made the design more reliable and easier to verify. Created the schedule of operations that occurred within the chip. The architecture proved so successful it was used in several follow-up developments.
- Successfully transferred project to product group.

Other Projects at Motorola

- Telepresence project – Developed multimedia router and player for system to demonstrate virtual communications and seamless mobility of content for the first time at Motorola.
- Video Virtual Reality – Provided the concept and guidance for development of a 360 degree stereoscopic video presentation using head mounted display.
- GSM Exec – Provided Motorola's first multi tasking operating system executive that was released in millions of early GSM mobile phones.

GTE AUTOMATIC ELECTRIC, Northlake, Illinois   1979 to 1984
Test engineer – Led development of digital telephony test equipment.

LAWRENCE LIVERMORE NATIONAL LABORATORY, Livermore, California   1978
Summer internship – Developed test equipment.

EDUCATION
National Technological University MSCE, Computer Engineering, 1990 – 1995

Michigan Technological University BSEE 1975 – 1979

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Addendum for the Resume of: CARL (MIKE) DANIELSEN

Publications

Real-Time Humanoid Avatar for Multi modal Human-Machine Interaction

2007 IEEE International Conference on Multimedia and Expo, Volume, Issue, 2-5 July 2007 Page(s):991 – 994, Yun Fu; Renxiang Li; Huang, T.S.; Danielsen, M.

Head pose tracking and gesture detection using block motion vectors on mobile devices

SESSION: IS-CHI 2007: Novel user interfaces & interaction I, Renxiang Li, Cuneyt Taskiran, Mike Danielsen

Requirements and constraints in MPEG-4 binary shape decoder at main profile

The 2000 IEEE International Symposium on Circuits and Systems, 2000. Proceedings. ISCAS 2000 Geneva. Volume 3, Issue, 2000 Page(s):650 - 653 vol.3, He, Z.; Malla, J.; Danielsen, M.; Levi, S.

The Heart and Souls of Videoconferencing

Multimedia System Design, August 1998, Mike Danielsen, Steve Sperle

MPEG-4 for DTV

Proc. SPIE, Vol. 3655, 87 (1998); DOI:10.1117/12.334755 Online Pub. Date: 29 May 2003, Danielsen, M.

Web links

MediaX presentation at Stanford - Virtual Worlds Open Doors on Community

See document: MikeDanielson.mov http://mediax.stanford.edu/video/MikeDanielson.mov

May 19, 2008

Mobile Use Cases

See document: Motorola-UseCase.pdf

http://vwinterop.wikidot.com/local--files/oct-9th-presentations/Motorola-UseCase.pdf

Oct 9th 2007, Virtual Worlds Interoperability Community Summit, Virtual Worlds Conference and Expo

Business Week interview - Building Your Own Phone Face

See document: id20060119_883103.htm

http://www.businessweek.com/innovate/content/jan2006/id20060119_883103.htm/

January 19, 2006, By Reena Jana

Patents

Digital temperature effect generator

Patent ID: US4385230
Issue Date: May 24, 1983
Inventor: Danielsen, Carl M.

Random number generator with digital feedback

Patent ID: US4853884
Issue Date: August 1, 1989
Inventor(s): Brown, Daniel P; Danielsen, Carl M.; Dabbish, Ezzat A.

Redundant microprocessor control system using locks and keys

Patent ID: US5136704
Issue Date: August 4, 1992
Inventor(s): Danielsen, Carl M.; Dabbish, Ezzat A.; Puhl, Larry C.

Apparatus and methods for head pose estimation and head gesture detection

Patent ID: US7412077
Issue Date: August 12, 2008
Inventor(s): Li, Renxiang; Danielsen, Carl M.; Taskiran; Cuneyt M.

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Software Development experience

10 years of project leadership covering hardware and software design, system architecture plus 2 years of technology leadership.

C++ coding

Vehicle navigation system - I developed object oriented C++ code for a vehicle navigation system in early 1990's. The system created turn by turn routing instructions and incorporated NavTech maps and GPS with graphical display, mush like today's GPS systems. I coded essential parts of the route planning software including the route object and methods to update routes when the driver went off route.

MPEG-2 video decoder - In the mid 90's, I created an object based MPEG-2 video decoder. This was at a time when the MPEG-2 standard was new and not completely finalized. Today MPEG-2 is used for HDTV, cable and DVD's. The decoder provided a reference standard for hardware development and several years later was used as a basis for MPEG-4 development by another team. The original code was written under UNIX on a HP workstation. The code was ported to Windows by the new team and was running in under 3 days.

Java coding

Beginning in 2000, I switched from developing in C++ to Java. While leading several projects, I also performed a considerable amount of coding. I led by example and the results of my work created a standard for interface and architecture design.

MPEG-4 system player- As part of a telepresence project incorporating 3D virtual spaces, I led a team to develop a MPEG-4 system layer multimedia player. The player was written in Java and developed using Eclipse. The player allowed multiple media streams to be combined and present to the user, simultaneously.

MPEG-4 system media router using TCP/IP - Also for the telepresence project, I created a multimedia streaming router based on MPEG- 4 system layer standard and using TCP/IP as its base communications layer. The router was able to stream multiple media feeds and three dimensional scene information to multiple players. I developed a scene description messaging protocol and created router that was easily scalable.

Avatar framework - In 2004 I led the development of an avatar based communications system. I created a framework and API for the avatar software in Java. The interface allowed other applications to easily use the avatars to enhance communications. The Avatar framework was used in several projects from a prototype sales kiosk to live presentations systems and text to speech with lip synced animation of the avatars facial features. The research work was developed in Java but later the code was ported to C++ under Linux and embedded into a cellular phone under its own OS. I oversaw this work as the project lead but did not do the programming at this point. The avatar framework on the mobile phone enabled the world's first interactive avatar call. Many engineers from all over the world participated in this development.

Second Life

MySQL and PHP used in conjunction with LSL (Linden Scripting Language) in Second Life to connect inworld scripts to external, web hosted databases. Databases are used to collect visitor metrics such as exhibit interactions in the virtual learning center. Explored methods for collaborative work through shared media within the virtual world. Scripted interactive exhibits in Second Life. I created an advanced user interface in LSL incorporating custom menus, widgets and touch sensors from the ground up.

Other

Architecture – Developed hardware, software and system architectures for state of the art prototypes involving new technologies in a corporate research environment for 24 years.

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