

# CHRISTOPHER SU-YAN OWN, PHD

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Christopher is a highly adaptable engineer and scientist with a broad range of exceptional technical skills applied to creating practical and innovative products. Driven by an intrinsic need for novelty, efficiency, and elegance in problem-solving, Christopher seeks to create technological solutions that have high impact for ordinary people.

## PROFESSIONAL EXPERIENCE

*CEO, ACK! INDUSTRIES* 2003-present

Founded to provide innovative digital bridge products for high-fidelity audio and consulting services. Managed all aspects of design, manufacture, marketing, sales, and field support in a private enterprise.

- Developed, manufactured, and sold transmission electron beam precession systems to three major US universities in 2007.
- Developed, manufactured, marketed, and sold hundreds of products and accessories for hi-fi consumer audio.
- Provided contract design and consulting services for manufacturing firms and research institutions.
- Executed hands-on manufacturing methods, including plastic injection molding, compression molding, sheet metal fabrication, and CNC and free machining of metals.
- Presented talks at trade shows, audio society meetings, and school classrooms on technical topics.

*RESEARCH PHYSICIST, NION COMPANY* 2005-2009

Contributed to the design, manufacture, and deployment of world-class ultra-high-resolution scanning transmission electron microscopes.

- Wrote software and firmware for controlling data acquisition systems, electron beam scanning systems, nano-precision manipulators, and automated sample exchange. Languages: C, C++, C#, and VHDL.
- Developed image recognition, registration, and processing algorithms.
- Designed, prototyped, and built mixed-signal electronics for electron beam control. Toolsets: OrCAD, Solidworks, and Pro/E.
- Introduced and implemented SCRUM, extreme programming (XP), and test-driven development methods to improve team efficiency and accountability.
- Presented formal talks on technical topics to international professional audiences.

*RESEARCH FELLOW, NORTHWESTERN UNIVERSITY* 1999-2005

Completed Ph.D. in materials physics at the high-resolution electron microscope and surface structure facility.

- Developed the first digitally-controlled electron beam precession system for solving atomic structure of crystals.
- Conducted research on shaped nanoparticle and quasicrystal materials systems using transmission and scanning electron microscopy, and surface science and spectroscopy techniques.
- Handled security, applications deployment, cross-platform networking, and hardware maintenance for Windows networks, Linux, HP/UX, and Aegis workstations, and a 24-node Rocks supercomputing cluster.
- Supported, managed, and mentored research projects with junior graduate students.
- Mentored middle school students in the Evanston school district on advanced engineering projects.

*NETWORK ADMINISTRATOR, NU DEPT. OF MATERIALS SCIENCE* 1998-2000

Designed, deployed, and managed a Windows NT/Linux undergraduate computing laboratory.

*CHIEF PHOTO EDITOR / PHOTOGRAPHER, THE DAILY NORTHWESTERN* 1998-2000

Managed a staff of 30 photographers for the daily newspaper at one of the top U.S. journalism schools.

PROFESSIONAL EXPERIENCE, CONT.

RESEARCH ASSISTANT, UNIVERSITY OF NORTH TEXAS

1996-1997

Conducted research on advanced polymer liquid crystal (PLC) composites at the Laboratory of Polymers and Composites.

- Performed thermomechanical analysis, thermogravimetric analysis, differential scanning calorimetry, and mechanical testing on composite materials fabricated by injection and compression molding.

**PUBLICATION HIGHLIGHTS:**

- Own CS. System Design and Verification of the Precession Electron Diffraction Technique. PhD Thesis (2005). (<http://www.numis.northwestern.edu/Research/Current/precession.shtml>)
- Own CS, et al. Aberration-corrected precession electron diffraction. *Microsc and Microanal* **13** (2007) 96-97.
- Own CS, Marks LD, Sinkler W. Precession electron diffraction 1: multislice simulation. *Acta Cryst A* **62** (2006) 434-443.
- Own CS, Marks LD, Sinkler W. Electron precession: a guide for implementation. *Rev Sci Instr* **76** (2005) 033703.
- Kilaas R, Marks LD, Own CS. EDM 1.0: Electron direct methods. *Ultramicroscopy* **102** (2005) 233-237.
- Own, CS. 2005. Digital-to-analog conversion. US Patent application no: 20050113948.
- Own, CS, and Marks LD. 2004. Hollow-cone electron diffraction system. US Patent application no: 60/531,641.

HONORS AND AWARDS**RESEARCH AND EDUCATION FUNDING:**

- Fannie and John Hertz Foundation Graduate Fellowship (2001)
- National Defense Science and Engineering Graduate (NDSEG) fellowship (2001) - *declined for Hertz Fellowship*
- Walter P. Murphy Fellowship, (2000)
- Harold B. Gotaas Undergraduate Research Award (2000)
- Barry M. Goldwater Scholarship (1997)

**CONFERENCE AND SOCIETY AWARDS:**

- National Institute of Materials Science (NIMS) Conference; Tsukuba, Japan: Lecturer Award (2007)
- International School of Crystallography; Erice, Italy: Student Scholarship (2004)
- Microscopy and Microanalysis: 1<sup>st</sup> place poster, instrument and technique (2003)
- Microscopy and Microanalysis: Presidential Student Award (2000)
- 5th Internat. Conf. on Polymer Characterization: 3rd place poster (1997)

EDUCATION

<i>Ph.D. in Materials Science and Engineering</i>	Northwestern University, Evanston, IL	2005
<i>B.S. in Materials Science and Engineering</i>	Northwestern University, Evanston, IL	2000
<i>Texas Academy of Mathematics &amp; Science</i>	University of North Texas, Denton, TX	1997
Honors graduate at an on-campus resident high school with a college curriculum geared toward a science or engineering degree.		

**LANGUAGES:** Fluent in Mandarin Chinese

**PERSONAL:** Chris enjoys family life with his wife Lindsey, a middle-school science teacher, and their two-year-old daughter Charlotte Lucy. He currently pursues hobbies in road bicycle racing, hi-fi audio, Argentine Tango, and photography. He also routinely undertakes independent projects related to applied physics and electronics, and enjoys visiting his wife's classroom as a guest scientist lecturer and coach for the Science Olympiad team.