Career Profile

CIM Editorial Office

Interview with Editor-in-Chief of the *IEEE Transactions on Autonomous Mental Development*, Zhengyou Zhang

CIM: Congratulations on your appointment as the founding editor-in-chief of the *IEEE Transactions on Autonomous Mental Development* (*TAMD*)!

Zhang: Thank you very much. I'd like to take this opportunity to thank David Fogel (CIS President), Jim Keller (CIS VP Publications), Vincenzo Piuri (Former CIS President) and Juyang Weng (Founding AMD TC Chair) for their immense support to this endeavor. This is a very exciting time for the AMD field and the AMD community.

CIM: Before we discuss your role and plans for this new publication beginning 2009, I'd like to know what events in your life most likely placed you on the path that led you to where you are today.

Zhang: Well, my path was marked mostly by the four countries I have lived in: China, France, Japan and USA. I was born and raised in China until I finished my undergraduate study at the University of Zhejiang in 1985. I specialized in electronic engineering and signal processing. In 1986, I moved to France to pursue my graduate study. I got my M.Sc. in Artificial Intelligence and Speech Recognition from University of Nancy in 1987, and my Ph.D. in Computer Vision from University of Paris-Sud (also known as Paris XI) in 1990. I became a Senior Research Scientist (a French government civil servant position) at the French National Institute for Research in Computer Science and Control (known as INRIA) in 1991. And in 1994, I obtained the Doctor of Science diploma, known as *Habilitation à diriger des recherches* in French. This is a diploma particular to France, Germany and a few other countries, indicating the qualification for a full professorship. From 1996 to 1997, I spent one year sabbatical as an Invited Researcher at the Advanced Telecommunications Research Institute International (ATR), Kyoto, Japan. During an international conference in Puerto Rico in summer 1997, a few colleagues at Microsoft Research (MSR) encouraged me to join MSR. So, soon after I returned to France, I moved to the USA in March 1998. Time flies, and I now have been with MSR for more than 10 years. Along the way of moving from one country to another, I have enriched my experiences with extremely different systems, and have enjoyed delicious food and beautiful cities such as Hangzhou, Paris, Nice, Kyoto, and Seattle.

CIM: Can you share with us a little bit about your background and your family life?

Zhang: I grew up in the countryside along the east coast of China. I met my wife in 1985 when we were both attending the intensive French language training in preparation for study in France. She also got a Ph.D. (in Natural Science) in France, but now she has a huge job: raising our three beautiful daughters: Rosaline, Laetitia and Stephanie.

CIM: How about a few words about this technical area, autonomous mental development? And what have been progressed over the past few years?

Zhang: Autonomous mental development (AMD) aims at creating brain-like machines that automatically develop and learn skills through interactions with their environments using their own sensors and effectors. This is only possible after we understand the working of the wide variety of mental capabilities in humans and higher animals. With the recent advances in cognitive science and neuroscience, especially with the help of brain mapping technologies such as the fMRI, EEG and PET, more and deeper details of the brain's inner workings are being revealed. This is a golden time to build computational models for mental developments and apply them to robots and other artificial systems. You can find a more detailed description of the scope in the *TAMD* submission guideline sidebar.

CIM: Can you tell us a little bit about your research works that brought you to this appointment?

Zhang: I have been doing research in computer vision and speech processing since 1986, and we have made significant progress in building practical working systems using geometric and statistical techniques. It's also clear to me that they are not powerful enough to endow machines with human-like skills to tackle uncontrolled or unknown environments, let alone acquire new skills. My particular interests in AMD are visual attention and recognition.

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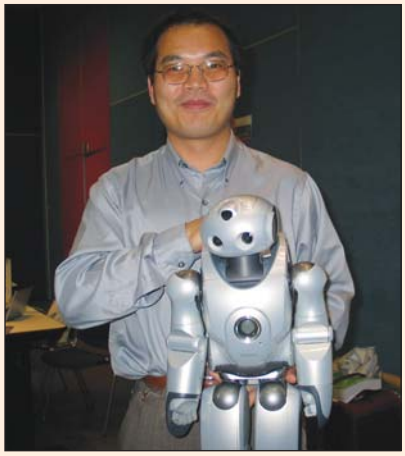
Profile: Zhengyou Zhang

Professional qualifications:

- B.S. in Electronic Engineering, University of Zhejiang, China, 1985.
- Diploma in French, Shanghai International Studies University, China, 1986.
- M.S. in Computer Science, University of Nancy, France, 1987.
- Ph.D. in Computer Science, University of Paris XI - Orsay, France, 1990.
- Doctor of Science (Habilitation à diriger des recherches), University of Paris XI, France, 1994.



Current position:

- Principal Researcher, Microsoft Research.
- Affiliate/Adjunct Professor, University of Washington, University of Southern California, University of Zhejiang.

Institutions where you have taught/conducted research:

- INRIA (French National Institute for Research in Computer Science and Control), France, 1987-1998
- ATR (Advanced Telecommunications Research Institute International), Japan, 1996-1997
- MSR (Microsoft Research), USA, 1998-

Proudest accomplishment:

Yet to achieve. However, two pieces of my work that are widely used in the computer vision research community and industry are plane-based camera calibration, and robust image matching and epipolar geometry estimation.

Most notable award/recognition:

- 2004 Election to IEEE Fellow
- 2005 Microsoft Career Achievement Award

Favorite book and why:

I am an avid reader, reading a variety of books, ranging from mathematics and sciences, to literature, to philosophy, to personal development, to management. *Matrix Computation* by Golub and Van Loan is one of my favorites, in which you can virtually find all you want to know about linear algebra. Two books related to AMD I recently read and like are *On Intelligence* by Hawkins and Blakeslee and *Brain Rules* by Medina.

Favorite food and why:

I don't have a single favorite. I like Chinese, French, Italian, Japanese, among others.

Most memorable vacation:

Trip to Banff and Jasper in Canada in 2001. Besides stunning scenery, it is most memorable because this was my family's first camping experience. Since then, my family is having a few camping trips every summer.

Interests/Hobbies:

Travel, Ping-Pong, Hiking.

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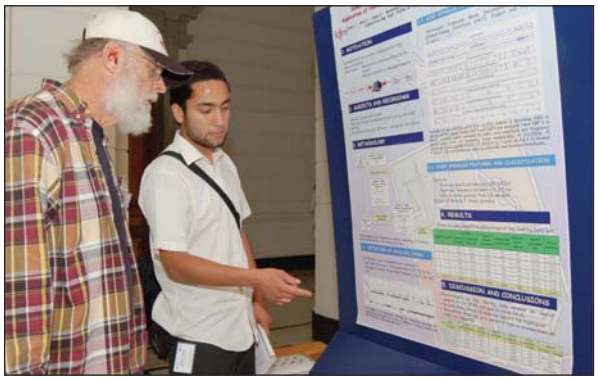

Prof. Jim Bezdek, CIS Distinguished Lecturer, listening to a student during the poster competition at EVIC 2007.

"I just wanted let you know how much I enjoyed the summer course in computational intelligence. The plenary talks were awesome. If there is someone in IEEE I could contact to let them know how well organized and instructive the 3 day event was, especially for graduate students, please let me know." R.V., graduate student, Canada.

"Let me say how much I enjoyed the summer school in Chile. This is one of the very best uses of our money (IEEE CIS) that I have seen. I hope that other chapters will follow your lead, and establish summer schools like the one you have for undergraduates in other regions", J.B., invited plenary speaker, USA.

Career Profile *(continued from page 4)*

CIM: Where will your research take you from here?

Zhang: A computer system with vision and speech that will understand its environment and take appropriate actions with minimal human interaction after its installation in an unknown, dynamic environment.

CIM: Who has made the most significant impact to your research works?

Zhang: Indirectly, Leonardo da Vinci. The story of his practice of egg drawing taught me when I was young that success only follows after diligence, perseverance and mastering of fundamentals. He is possibly the first person who modeled the human vision as perspective projection which I use extensively in my computer vision work. Also this genius is my hero for being both the greatest artist and the greatest scholar. He demonstrated to us that the human brain has virtually unlimited potential for learning and creativity.

CIM: And in your personal life?

Zhang: My father, and my children. I have learned from my father, and I'm learning from my children.

CIM: How do you define your role as new Editor-in-Chief of a new publication? What would be your priorities for the first year?

Zhang: My role is to ensure that *TAMD* becomes a highly respected and influential journal. For the first year, besides building a strong editorial board, I will work hard to solicit impactful papers that support the development of this young field.

CIM: What advices you would like to offer to the interested authors to submit their research works?

Zhang: AMD is by nature a multidisciplinary research field. To ensure a wide audience and a large impact, the authors should write their papers as readable and interesting as possible. A paper will be reviewed by peers from both natural and artificial intelligence sides.

CIM: What is your vision for *TAMD* in five years from now?

Zhang: *TAMD* will support a much larger AMD community, and will be as impactful as other IEEE publications such as *TEC, TNN, TFS,* and *TPAMI.*

CIM: How long have you been involved with the Society and in what capacity?

Zhang: I am a member of the CIS AMD TC since its foundation in 2004, have organized two special sessions on visual attention and recognition, have co-edited a special issue on AMD, and became the Chair of the AMD TC in 2007.

CIM: Thank you for your time. Those of us associated with *CIM* and in CIS wish you a very successful tenure in kicking off the *TAMD*!

Focus on Students *(continued from page 8)*

I believe that supporting the students the way the IEEE and CIS already do is great! Receiving a travel grant to attend the IJCNN conference in Hong Kong enabled us to present our work, which would have otherwise been compromised since we are both only Ph.D. students. Also the IEEE and CIS could further develop their roles of a meeting platform between students and displaying window to cutting-edge science.

CIM: Just for fun: Will you state two truths and one lie about yourself? Don't say which is the truth and which is the lie and we will leave it to our readers to guess.

Petreska: Well, first of all I never lie. Second, more than anything else, I love to travel. And I speak five languages.

CIM: Thanks for your time. We wish you the best of luck in completing your degree work.

Petreska: Thank you very much. It was a pleasure to do this interview. I wish the IEEE and CIS a very long and successful life!

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