

## Education

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- Sep 04 – present  
Stanford, CA, USA      **Seeking Ph.D. in Electrical Engineering at Stanford University, CA, USA**  
Research – Interactive Video Delivery, Scalable Video Coding, P2P Video Delivery  
Advisor - Prof. Bernd Girod
- Sep 02 - Sep 04  
Munich, Germany      **MS, Communications Engineering at Technical University of Munich, Germany, Completed with Excellence**  
Research – Motion-Compensated Lifted 3-D Wavelet Video Coding, Multiple Description Video Coding  
Advisor - Prof. Dr.-Ing. Eckehard Steinbach
- Jul 98 - Jun 02  
Pune, India      **BE, Electronics and Telecommunications at Pune University, India**  
Every year consistently ranked in the top 10 out of roughly 3000 students who studied Electronics and Telecommunications at Pune University

## Internships

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- 07/28/03-  
10/03/03      **Siemens Corporate Technology, Information and Communication Networks, Munich, Germany.**
- Analysis of a scalable video coding proposal and possibility of integrating the same in a bigger project at Siemens Corporate Technology.
  - Built an Adaptation Algorithm Library for Scalable Video Coding and integrated the same with the Darwin Streaming Server for streaming 3-D Wavelet coded Video.
- 02/15/03-  
05/23/03      **Siemens Mobile, Technical Innovations 9, Munich, Germany.**
- Software Development on an Analog Devices Mobile Chipset (ARM 7 based wrist phone Core) for interfacing with a DAB (Digital Audio Broadcasting) module. The wrist phone (developed fully at Siemens) is a fully functional GSM mobile phone in a wrist watch.
  - Development and implementation of the MMI (Man Machine Interface) for the above.
  - Integration of applications running on the wrist phone Core with an external Virtual Keyboard (VKB).
- Jul 01 - May 02      **Bachelor Project carried out at Pace Soft Silicon Labs, Pune, India.**
- MPEG-4 Video Encoder on Texas Instruments' TMS 320 C 6201 DSP Platform. The Bachelor Project is a compulsory part time activity to be undertaken in the last year of the B.E. degree in Electronics & Telecommunications at the University of Pune, India.

## Teaching

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**Teaching Assistant for EE368: Digital Image Processing (offered by Prof. Bernd Girod at Stanford University)**  
Spring 2006, Spring 2007, Spring 2008

**Teaching Assistant for Image and Video Compression Laboratory  
(offered by Prof. Eckehard Steinbach at Technical University of Munich)  
Summer 2004**

**Industrial  
Collaboration (during PhD Research)**

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- Feb 09 - current      Ampex Corporation, Redwood City, CA
- Jan 07 – Sep 09      Deutsche Telekom Research Laboratories, Berlin, Germany

**Awards,  
Scholarships  
& Prizes**

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- Nov 07      **Best Paper Finalist; Among Top Four**
- David Varodayan, Yaochung Lin, Aditya Mavlankar, Markus Flierl, and Bernd Girod, "Wyner-Ziv Coding of Stereo Images with Unsupervised Learning of Disparity," at the International Picture Coding Symposium (PCS), Lisbon, Portugal
- Nov 07      **Student Travel Grant Award**
- Aditya Mavlankar, David Varodayan, and Bernd Girod, "Region-of-Interest Prediction for Interactively Streaming Regions of High Resolution Video," at the 16th IEEE International Packet Video (PV) Workshop, Lausanne, Switzerland
- Sept 07      **Best Student Paper Award**
- Aditya Mavlankar, Pierpaolo Baccichet, David Varodayan, and Bernd Girod, "Optimal Slice Size for Streaming Regions of High Resolution Video with Virtual Pan/Tilt/Zoom Functionality," at the 15th European Signal Processing Conference (EUSIPCO), Poznan, Poland
- Oct 06      **Best Student Paper Award**
- David Varodayan, Aditya Mavlankar, Markus Flierl, and Bernd Girod, "Distributed Coding of Random Dot Stereograms with Unsupervised Learning of Disparity," at the IEEE Workshop on Multimedia Signal Processing (MMSP), Victoria, Canada.
- Aug 05      **Edison Prize Bronze Medal**
- Master's thesis was awarded the Edison Prize Bronze Medal by IIE Europe in conjunction with the GE Foundation. The Edison prize is awarded yearly after scrutinizing Master's and Diploma theses completed nation-wide in various engineering branches in Germany.
- May 04 – Aug 04      **"Scholarship for Foreign Students" studying at the Technical University of Munich, Munich, Germany for the Summer semester 2004**

- Oct 03 – Feb 04      **Scholarship “Hochschule International” for exceptional students studying at the Technical University of Munich, Munich, Germany for the Winter semester 2003-2004**
- Feb 03 – Oct 04      **“Siemens Youth and Knowledge Scholarship” for outstanding international students pursuing an international Master’s Program at a German university (Scholarship awarded and funded by Siemens AG, Germany)**
- 2002, 2001, 2000      **Ranked in the top 10 list of Pune University (B.E. in Electronics & Telecommunications)**
- 2002: Rank 8 out of roughly 3000 students who took the same exams of the 4<sup>th</sup> Year of B.E. in Electronics & Telecommunications.
  - 2001: Rank 8 out of roughly 3000 students who took the same exams of the 3<sup>rd</sup> Year of B.E. in Electronics & Telecommunications.
  - 2000: Rank 5 out of roughly 3000 students who took the same exams of the 2<sup>nd</sup> Year of B.E. in Electronics & Telecommunications.
- 2002, 2001, 2000      **Rank 1 in all these years in the class of 70 students at Pune Institute of Computer Technology, Pune, India in the exams of the B.E. degree**

Gold Medals of Honor.

## Software Skills

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Environments	Windows 9x/NT/XP, Linux
Simulation	Matlab
Languages	C/C++, Intel 8085, 8051 assembly, Perl.

## Languages

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**Fluent in English, Marathi, Hindi and German**

## References

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**Prof. Bernd Girod**, Stanford University, Stanford, CA  
**Prof. Ekehard Steinbach**, Technical University of Munich, Munich, Germany  
**Dr. John Apostolopoulos**, Hewlett-Packard Laboratories, Palo Alto, CA  
**Dr. Sachin Agarwal**, Deutsche Telekom Laboratories, Berlin, Germany  
**Peter Amon**, Siemens Corporate Technology, Munich, Germany

Others available upon request.

## Courses

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### @ Stanford:

Introduction to Linear Dynamical Systems, Introduction to Statistical Signal Processing, The Fourier Transform and its Applications, Image and Video Compression, Information Theory Part A & Part B, Convex Optimization, Machine Learning, Applied Vision & Imaging Systems, Digital Video Processing.

### **@ TU Munich:**

Mobile Communications, Broadband Communications, Real-time Systems, Information Theory & Source Coding, Adaptive and Array Signal Processing, SDL Based System Design Laboratory, Image and Video Compression, Image and Video Compression Laboratory, Multi-media Communications, Advanced Topics in Signal Processing, Advanced Topics in Communications, Channel Coding, Cryptography & System Security, System Aspects in Signal Processing, System Aspects in Communications, Engineering Management, Space-Time Processing in MIMO Systems, Seminar on Topics in Signal Processing.

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## **Publications**

### **Journal Papers:**

- Markus Flierl, Aditya Mavlankar and Bernd Girod, "*Motion and Disparity Compensated Coding for Multi-View Video*," Special Issue on Multi-View Video Coding, IEEE Transactions on Circuits and Systems for Video Technology (Invited paper)
- Aditya Mavlankar and Bernd Girod, "*Spatial-Random-Access-Enabled Video Coding for Interactive Virtual Pan/Tilt/Zoom Functionality*," IEEE Transactions on Circuits and Systems for Video Technology (submitted)

### **Conference Proceedings:**

- Mina Makar, Aditya Mavlankar, and Bernd Girod, "*Compression-Aware Digital Pan/Tilt/Zoom*," Proc. of 43rd Annual Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, USA, Nov. 2009 (submitted)
- Aditya Mavlankar and Bernd Girod, "*Pre-Fetching Based on Video Analysis for Interactive Region-of-Interest Streaming of Soccer Sequences*," Proc. of IEEE International Conference on Image Processing (ICIP), Cairo, Egypt, Nov. 2009 (accepted)
- Jeonghun Noh, Aditya Mavlankar, Pierpaolo Baccichet, and Bernd Girod, "*Time-Shifted Streaming in a Peer-to-Peer Video Multicast System*," Proc. of IEEE Global Communications Conference (GLOBECOM), Honolulu, Hawaii, USA, Nov./Dec. 2009 (accepted)
- Aditya Mavlankar, Jeonghun Noh, and Bernd Girod, "*Optimal Server Bandwidth Allocation among Multiple P2P Multicast Live Video Streaming Sessions*," Proc. of 17th IEEE International Packet Video Workshop (PV), Seattle, Washington, USA, May. 2009
- Jeonghun Noh, Pierpaolo Baccichet, Frank Hartung, Aditya Mavlankar, and Bernd Girod, "*Stanford Peer-to-Peer Multicast (SPPM) - Overview and Recent Extensions*," Proc. of Proc. of International Picture Coding Symposium (PCS), Chicago, Illinois, USA, May. 2009
- Aditya Mavlankar and Bernd Girod, "*Background Extraction and Long-Term Memory Motion-Compensated Prediction for Spatial-Random-Access-Enabled Video Coding*," Proc. of Proc. of International Picture Coding Symposium (PCS), Chicago, Illinois, USA, May. 2009
- Aditya Mavlankar, Jeonghun Noh, Pierpaolo Baccichet, and Bernd Girod, "*Optimal Server Bandwidth Allocation for Streaming Multiple Streams via P2P Multicast*," Proc. of International Workshop on Multimedia Signal Processing (MMSP), Cairns, Queensland, Australia, October 2008
- Jeonghun Noh, Pierpaolo Baccichet, Aditya Mavlankar, and Bernd Girod, "*Un-Leeching P2P Streaming By Active Overlay Management*," Proc. of IEEE Global Communications Conference (GLOBECOM), New Orleans, USA, December 2008

- Aditya Mavlankar, Jeonghun Noh, Pierpaolo Baccichet, and Bernd Girod, "*Peer-to-Peer Multicast Live Video Streaming with Interactive Virtual Pan/Tilt/Zoom Functionality*," Proc. of International Conference on Image Processing (ICIP), San Diego, USA, October 2008
- Jeonghun Noh, Aditya Mavlankar, Pierpaolo Baccichet, and Bernd Girod, "*Reducing End-to-End Transmission Delay in P2P Streaming Systems Using Multiple Trees with Moderate Outdegree*," Proc. of International Conference on Multimedia and Expo (ICME), Hanover, Germany, June 2008
- Aditya Mavlankar, Pierpaolo Baccichet, Bernd Girod, Sachin Agarwal, and Jatinder Pal Singh, "*Video Quality Assessment and Comparative Evaluation of Peer-to-Peer Video Streaming Systems*," Proc. of International Conference on Multimedia and Expo (ICME), Hanover, Germany, June 2008
- Sachin Agarwal, Jatinder Pal Singh, Aditya Mavlankar, Pierpaolo Baccichet, and Bernd Girod, "*Performance and Quality-of-Service Analysis of a Live P2P Video Multicast Session on the Internet*," Proc. of 16th IEEE International Workshop on Quality of Service (IWQoS), Enschede, The Netherlands, June 2008
- Sachin Agarwal, Jatinder Pal Singh, Aditya Mavlankar, Pierpaolo Baccichet, and Bernd Girod, "*Performance of P2P Live Video Streaming Systems on a Controlled Test-bed*," Proc. of 4th International Conference on Testbeds and Research Infrastructures for the Development of Networks & Communities (TRIDENTCOM), Innsbruck, Austria, March 2008
- David Varodayan, Yao-Chung Lin, Aditya Mavlankar, Markus Flierl, and Bernd Girod, "*Wyner-Ziv Coding of Stereo Images with Unsupervised Learning of Disparity*," Proc. of International Picture Coding Symposium (PCS), Lisbon, Portugal, November 2007. **(Best Paper Award Finalist; Among Top Four)**
- Aditya Mavlankar, David Chen, Sameh Zakhary, Markus Flierl, and Bernd Girod, "*Noise Processing for Simple Laplacian Pyramid Synthesis Based on Dual Frame Reconstruction*," Proc. of International Picture Coding Symposium (PCS), Lisbon, Portugal, November 2007
- Aditya Mavlankar, David Varodayan, and Bernd Girod, "*Region-of-Interest Prediction for Interactively Streaming Regions of High Resolution Video*," Proc. of 16th IEEE International Packet Video Workshop (PV), Lausanne, Switzerland, November 2007. **(Student Travel Grant Awarded; Sponsored by Vidyo (formerly Layered Media) and Microsoft Research Asia)**
- Aditya Mavlankar, Pierpaolo Baccichet, David Varodayan, and Bernd Girod, "*Optimal Slice Size for Streaming Regions of High Resolution Video with Virtual Pan/Tilt/Zoom Functionality*," Proc. of 15th European Signal Processing Conference (EUSIPCO), Poznan, Poland, September 2007. **(Best Student Paper Award)**
- David Varodayan, Aditya Mavlankar, Markus Flierl, and Bernd Girod, "*Distributed grayscale stereo image coding with unsupervised learning of disparity*," Proc. of IEEE Data Compression Conference (DCC), Snowbird, Utah, USA, March 2007
- Aditya Mavlankar, Markus Flierl, and Bernd Girod, "*Post-Processing for Decoding without Update Step in Motion-Compensated Lifted Wavelet Video Coding*," Proc. of SPIE Visual Communications and Image Processing (VCIP), San Jose, USA, January 2007
- David Varodayan, Aditya Mavlankar, Markus Flierl, and Bernd Girod, "*Distributed Coding of Random Dot Stereograms with Unsupervised Learning of Disparity*," Proc. of IEEE International Workshop on Multimedia Signal Processing (MMSp), Victoria, Canada, October 2006. **(Best Student Paper Award)**
- Aditya Mavlankar, Chuo-Ling Chang, and Bernd Girod, "*Intraframe Prediction with Intraframe Update Step for Motion-Compensated Lifted Wavelet Video Coding*," Proc. of IEEE International Picture Coding Symposium (PCS), Beijing, China, April 2006
- Markus Flierl, Aditya Mavlankar, and Bernd Girod, "*Motion and Disparity Compensated Coding for Video Camera Arrays*," Special Session on Multiview Coding, Proc. of IEEE International Picture Coding Symposium (PCS), Beijing, China, April 2006

- Aditya Mavlankar, Sang-eun Han, Chuo-Ling Chang, and Bernd Girod, "*A New Update Step for Reduction of PSNR Fluctuations in Motion-Compensated Lifted Wavelet Video Coding*," Proc. of IEEE International Workshop on Multimedia Signal Processing (MMSP), Shanghai, China, November 2005
- Chuo-Ling Chang, Aditya Mavlankar, and Bernd Girod, "*Analysis of Quantization Error Propagation for Motion-Compensated Lifted Wavelet Video Coding*," Proc. of IEEE International Workshop on Multimedia Signal Processing (MMSP), Shanghai, China, November 2005
- Aditya Mavlankar and Eckehard Steinbach, "*Multiple Description Video Coding using Motion-Compensated Lifted 3-D Wavelet Decomposition*," Proc. of IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Philadelphia, USA, March 2005
- Aditya Mavlankar and Eckehard Steinbach, "*Distortion Prediction for Motion-Compensated Lifted Haar Wavelet Transform and its Application to Rate Allocation*," Proc. of IEEE International Picture Coding Symposium (PCS), San Francisco, USA, December 2004

#### **Patents:**

- (with Siemens AG) Aditya Mavlankar, Vivek Kulkarni, and Vishal Sankhla, "Method and System for preparing an automatic translation of a text," WO 2005/106706 A2; world-wide patent.
- 1 US patent, filed in conjunction with Stanford University Office of Technology Licensing (OTL), pending.

#### **Professional Activities**

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##### **Reviewer for following Journals:**

- IEEE Signal Processing Letters
- IEEE Transactions on Signal Processing
- IEEE Transactions on Image Processing
- IEEE Transactions on Circuits and Systems for Video Technology (CSVT)
- EURASIP Journal on Applied Signal Processing
- EURASIP Journal on Image and Video Processing