

Christoph Bregler

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548 Market St, #64169
San Francisco, CA 94104

EDUCATION

University of California, Berkeley, CA, 09/93 – 05/98
Ph.D. in Computer Science, 1998, M.S., 1995
Thesis: Computational Models of Human Motion

University of Karlsruhe, Germany, 10/87 – 09/93
Diplom in Computer Science, 1993
Thesis: Computer Lipreading

PROFESSIONAL EMPLOYMENT

Alphabet/Google, Mountain View, 2015-present
Senior Staff Scientist / Engineering Manager

Stanford University, Visiting Professor of Neurology, 2014- present

New York University, Computer Science Dept., Courant Institute, New York, 2002 – 2014
Full Professor (tenured) / (previously Associate Professor (tenured) / Asst. Professor)

Lucasfilm, Industrial Light & Magic, San Francisco, 2007 – 2015

Lead Architect for ILM Multi-Track, co-developed Geometry Tracker, General Match Moving tools, 3D Face Capture. Received 2016 **Academy Award** for Geometry Tracker (with Ronald Mallet) in the Oscars Sci-Tech Category. Multi-Track and Geometry Tracker was used in: Avatar (2009), Cowboys & Aliens, Pirates of the Caribbean: on Stranger Tides, Transformers: Dark of the Moon, Transformers: Age of Extinction, Avengers: (2012), Avengers: Age of Ultron (2015), Battleship, G.I. Joe, Captain America: The Winter Soldier, Now You See Me, Pacific Rim, Star Trek: Into Darkness, Lone Ranger, Lucy, Noah, Teenage Mutant Ninja Turtles (2014), Star Wars: The Force Awakens (2015).

Manhattan Mocap, LLC, New York City, 2009–2014 (partially acquired by Facebook)
Founder, C.E.O. – 5 employees, Motion Capture technology, R&D. Clients include ESPN, MLB, Digitas, 20th Century Fox, New York Times, Disney, Lucasfilm, ILM.

Grit Enterprises, Inc, Berkeley, CA, 06/14 – 12/14 (acquired by other entity)
Founder, C.E.O. – 3 employees, Face Recognition, Deep Learning, Graphics. Client: IARPA contract (Research wing of CIA, NSA, FBI), US Navy Contract

Various (ongoing) short-term consulting arrangements: Expert-Witness, IP Evaluation, Project Planning, Research, etc (clients included 20th Century Fox, Weil, Gotshal & Manges, Paladin Capital Group, Cowan Leibowitz & Latman P.C., Sheppard Mullin Richter & Hampton LLP, Gray Cary Ware & Freidenrich LLP, TAEUS, Lightstorm Entertainment, ESC Entertainment)

Stanford University, Computer Science Department, CA, 01/99 – 08/02

Assistant Professor: Vision, Graphics, Learning.

Disney Feature Animation, Burbank, CA, 2001 + 2002

Consultant: Vision Based Motion Capture for Gemeni Project (Facial Animation)

New York University, Courant Institute/Media Research Lab, New York, 08/98 – 01/99

Visiting Scholar

Interval Research Corp., Palo Alto, CA, 95 – 97

Consultant: Developed Facial Animation System: Video Rewrite

Hewlett-Packard Laboratories, Palo Alto, CA, 91-92

Software Engineer: Developed System Software for Physician's Workstation Project

HONORS

- **Academy Award 2016** in the Oscar's Science & Technology (SCITECH) category for ILM's Geometry Tracker (with Ronald Mallet)
- **Malofiej21 Gold** (Main Infographics Event for Journalists), for "**Olympics Portfolio**" with NY Times collaboration.
- **Time Magazine** feature as one of the "**10 Ideas that make a Difference in 2013**"
- 2012 New York Times Publisher's Award and 2012 Online Journalism Award for "**Connecting Music and Gesture**" / "**The Maestro's Mojo**"
- 2011 **Best in Show Award Peter Sullivan Award**, 19th Malofiej International Infographics Awards, for "**How Mariano Rivera Dominates Hitters**" with NY Times collaboration.
- **Malofiej19 Gold** (same event as above), for "**How Mariano Rivera Dominates Hitters**" with NY Times collaboration.
- IEEE 2008 **Longuet-Higgins Prize** (for Fundamental Contributions in Computer Vision that Have Withstood the Test of Time)
- Finalist, **Blavatnik Award 2007** (New York Academy of Science)
- *Reese Prosser Memorial Lecture 2005* (Dartmouth)
- *Motion Capture Society World Records*: Squidball: Most Interactive Capture (Incumbent), Largest Markers (Incumbent), Largest Capture (2004)
- *Program Chair*, SIGGRAPH 2004, Computer Animation Festival & Electronic Theater
- **Sloan Research Fellow**, 2003, 2004
- **Olympus Prize, 2002**, (German Vision / AI Society DAGM honors every year 1 outstanding scientist)
- *I.E. Block Community Lecture*, 50th Anniversary of SIAM community, 2002
- *IEEE CVPR 2001 Best Student Paper* (Co-Author / Advisor of student)
- *Stanford Terman Fellow*, 1999
- *Stanford Joyce Faculty Fellow*, 1999
- *ACM Doctoral Dissertation Nomination*, 1998

OTHER PROFESSIONAL ACTIVITY

Editorial Boards:

International Journal of Computer Vision (Springer)
IEEE Transaction of Pattern Analysis and Machine Intelligence
Foundations and Trends in Computer Graphics and Vision (Now Publishers)

Other Boards:

Board of Directors, Dance Notation Bureau, NYC, since 2009
Board of Directors, SONA Research, San Francisco, since 2009
Advisory Board, Max Planck & Stanford University Center for Visual Computing and Communication, since 2012
Advisory Board, MaMoCa, Los Angeles, now sold to MotionAnalysis, since 2006
Advisory Board, Machine Perception Technologies, San Diego, Jan 2008 to Jan 2013
HackNY, Admissions Committee, 2012

Program Committees:

Prix Ars Electronica Jury, Linz, 2013
Program Chair, Pacific Graphics, 2012
Prix Ars Electronica Jury, Linz, 2010
ACM SIGGRAPH 2009 General Jury
Prix Ars Electronica Jury, Linz, 2009
Program Chair IEEE Workshop on Motion and Video Computing, Snowbird, Utah, 2009
IEEE CVPR 2007
ACM SIGGRAPH Papers 2006
ACM SIGGRAPH Papers 2005
Area Chair for IEEE CVPR, 2005
ACM SIGGRAPH Electronic Theater & Computer Animation Festival, Chair 2004
IEEE CVPR, Madison, Wisconsin, 2003,
AAAI, Edmonton, Alberta, Canada 2002,
Eurographics, Sarbruecken, Germany, 2002,
Pacific Graphics, Beijing, China, 2002,
IEEE CVPR, Hawaii, 2001,
Graphics Interface, Ottawa, Ontario, Canada, 2001,
IEEE Workshop on Human Motion, Austin, TX 2001,
Area Chair for IEEE CVPR, Hilton Head, SC, 2000,
IEEE Workshop on Human Modeling, Hilton Head, SC, 2000,
Vision, Modeling, and Visualization, Stuttgart, Germany, 2001,
IEEE Computer Animation, Seoul, Korea, 2001,
IEEE Computer Animation, Philadelphia, 2000,
ACM SIGGRAPH Animation Sketches, New Orleans, 2000,
Audio-Visual Speech Processing, Santa Cruz, 1999,
IEEE Int. Workshop on Modeling People, Corfu, Greece, 1999

Review Panels:

NSF review panel for various programs in 2008, 2007, 2005, 2003, 2002, 2001, 1998
Sloan Foundation Feature Film Grant Judge, 2011, 2010, 2009, 2006, 2005, 2004, NYU
Tisch School of Arts Film&TV & Sloan Foundation

Reviewer:

MacArthur Foundation, ACM SIGGRAPH, SCA, Advances in Neural Information Processing Systems, IEEE CVPR, EE Computer Animation, IEEE Int. Conf on Robotics and Automation,
Int. Journal on Computer Vision, Trans. on Pattern Analysis and Machine Intelligence, Journal of Computer Vision and Image Understanding, Trans. On Image Processing, Journal on Artificial Intelligence Research, Journal of VLSI Signal Processing Systems

For Speech, Image, and Video Technology.

GRANTS

IARPA Janus Grant: \$1,400,000, Face Recognition, Face Synthesis, Deep Learning, 08/14-
Via Grit Enterprises Inc (CEO and Founder).

ONR Grant: Dyadic and Crowd Analytics from Video, 10/11-09/14
PI: C. Bregler, \$1,050,000 / 3 years

AFRL SBIR Phase II Grant: Automated Analysis and Classification of Anomalous 3-D Human
Shapes and Hostile Actions, 05/11-04/13
PI: K. Atul, NYU-PI: C. Bregler, \$250K subcontract to NYU.

ONR Grant: Statistical Analysis of Body Signatures. 12/08 – 10/11
PI: C. Bregler, \$900K / 3 years + DURIP of \$572K = total \$1,472,000

Google Faculty Research Award, Space-Time Mash-Up, 05/10-05/11
PI: C. Bregler, \$30K / 1 year

AFRL SBIR Phase I Grant: Automated Analysis and Classification of Anomalous 3-D Human
Shapes and Hostile Actions, 05/10-11/11
PI: K. Atul, NYU-PI: C. Bregler, \$33K subcontract to NYU.

NSF Grant: SGER: The Grammar of Immersive Interactive Narrative. 08/07 – 07/08
PI: Scott Snibbe, C. Bregler, \$130K / 1 year (subcontract to SONA research)

ONR Grant: Intrinsic Biometrics for Human Motion Signatures. 05/07 – 12/08
PI: C. Bregler, \$280K / 1.5 years

NSF Grant: Laban Capture, Perceptual Models of Dynamics. 09/03 – 09/07
PI: C. Bregler, Co-PI: Ted Warburton (Dance Education), Peggy Hackney (IMS);
\$672K / 3 years

NSF Grant: ITR: New Technology for the Capture, Analysis and Visualization of Human
Movement. 09/03 – 09/07
PI: R. Chellappa, UMD, Co-PI, C. Bregler, NYU, J Jeka, T. Andriacchi, Stanford, L. Davis,
UMD;
NYU part \$320K / 3 years

Sloan Research Fellow, 09/03 – 09/05, \$40K / 2 years

ONR-MURI Detecting Human Activity with a network of vision sensors. 10/01 – 10/06
PIs: J. Malik, Co-PIs: C. Bregler, D. Forsyth, J. Canny, S. Russell, M. Jordan, P. Perona, M.
Mataric;
Subcontract for \$750K / 5 years (to NYU now)

NSF Grant: Models of Human Kinematics, 09/00 – 08/03
PI: Bregler; \$340K / 3 years

NSF CISE Research Instrumentation: High-Speed Motion Acquisition, 09/00 – 08/03
PI: Bregler, Co-PI: Andriacchi, Hanrahan;
\$200K / 3 years

Stanford BIO-X: "Move-to-a-Cure" 10/00 – 10/02

Collaboration with Medical School to analyze Movement Disorders.
PI: Bronthe-Steward, Co-PI: Bregler; Alexander
\$200K / 2 years

Stanford Office of License and Technology Research Incentive grant for Cartoon Capture, 2001
PI: Bregler, Loeb; \$25K

Stanford Terman Fellowship, 1999-2001

Stanford Noyce Faculty Scholarship, 1999-2000

Gift Fund from Electronic Arts, 2001, \$45K

Gift Fund from Microsoft Research, 2000, \$20K

California MICRO, Interval, Recognition of Human Motion in Video, 07/96-07/98
Faculty PI: J. Feldman; Student PI: C. Bregler;
\$100K / 2 years

PEER REVIEWED PUBLICATIONS

Efficient ConvNet-based Marker-less Motion Capture in General Scenes with a Low Number of Cameras – not online yet

(accepted at CVPR 2015)

Efficient Object Localization Using Convolutional Networks

Jonathan Tompson, Ross Goroshin, Arjun Jain, Yann LeCun, Christoph Bregler
arxiv.org/abs/1406.2984 ([pdf](#)) (accepted at CVPR 2015)

Dancing with the Turks – not online yet

(accepted at ACM MM 2015)

Joint Training of a Convolutional Network and a Graphical Model for Human Pose Estimation

Jonathan Tompson, Arjun Jain, Yann LeCun, Christoph Bregler
arxiv.org/abs/1406.2984 ([pdf](#)) (accepted at NIPS 2014)

MoDeep: A Deep Learning Framework Using Motion Features for Human Pose Estimation

Arjun Jain, Jonathan Tompson, Yann LeCun, and Chris Bregler
arxiv.org/abs/1406.2984 ([pdf](#)) (accepted at ACCV 2014)

Learning Human Pose Estimation Features with Convolutional Networks

Arjun Jain, Jonathan Tompson, Mykhaylo Andriluka, Graham W. Taylor, Christoph Bregler
Int. Conf. on Learning Representations, (ICLR) 2014 ([pdf](#))

Cryptagram: Photo Privacy for Online Social Media

Matt Tierney, Ian Spiro, Chris Bregler, Lakshmi Subramanian
Accepted to ACM Conference on Online Social Networks (COSN), 2013

Realtime Facial Animation with On-the-fly Correctives

Hao Li, Jihun Yu, Tuting Ye, Chris Bregler
Accepted to ACM SIGGRAPH, Technical Papers, 2013

Dancing with MTurkers: Using Crowd Sourcing to Analyze and Synthesize Motion Capture based Animation

I-Kao Chiang, Alyssa Lees, Yanxi Liu, Chris Bregler

Submitted to ACM Multimedia, Brave New Idea Papers, 2013

Markerless Motion Capture in the Crowd

Ian Spiro, Thomas Houston, Christoph Bregler

Collective Intelligence, 2012

3D skeletal reconstruction from low-resolution multi-view images

Mayank Rana, Graham Taylor, Ian Spiro, Christoph Bregler

CVPR Int. Workshop on Human Activity Understanding from 3D Data, 2012

Learning Invariance by Imitation

Graham Taylor, Ian Spiro, Christoph Bregler, and Rob Fergus,

Proc. of the 24th IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR) 2011

Pose-Sensitive Embedding by Nonlinear NCA Regression

G. Taylor, R. Fergus, I. Spiro, G. Williams and C. Bregler

Proc. of Advances in Neural Information Processing Systems (NIPS) 23, 2011

Convolutional Learning of Spatio-temporal Features

G. Taylor, R. Fergus, Y. LeCun and C. Bregler

Proc. of the 11th European Conference on Computer Vision (ECCV), 2010

Body Motion Analysis for Multi-Modal Identity Verification

G. Williams, G. Taylor, K. Smolskiy, C. Bregler

IEEE Int. Conf. on Pattern Recognition, 2010

Hands by hand: crowd-sourced motion tracking for gesture annotation

I. Spiro, G. Taylor, G. Williams, C. Bregler

IEEE CVPR Workshop on Automatic Vision with Humans in the Loop, 2010

Learning local spatio-temporal features for activity recognition

G. Taylor, C. Bregler

Snowbird Learning Workshop, 2010

Identifying People based on their Motion Signature

G. Williams, G. Taylor, I. Spiro, C. Bregler

Snowbird Learning Workshop, 2010

Convolutional learning of spatio-temporal features, Graham Taylor, Rob Fergus, Yann

LeCun, and Christoph Bregler. In New York Academy of Sciences Machine Learning

Symposium, 2010

Improving Acoustic Speaker Verification with Visual Body-Language Features

C. Bregler, G. Williams, S. Rosenthal, I. McDowall

Proc. IEEE Int. Conference on Acoustics Speech and Signal Processing, 2009

Large Displacement Optical Flow

T. Brox, C. Bregler, J. Malik

Proc. IEEE Conf. Computer Vision and Pattern Recognition, 2009

ILM's Multitrack: A new visual tracking framework for high-end VFX production

C. Bregler, K. Bhat, J. Saltzman, B. Allen
ACM SIGGRAPH 2009 talks/abstracts (formerly known as sketch)

Non-Rigid Structure-From-Motion: Estimating Shape and Motion with Hierarchical Priors

L. Torresani, A. Hertzmann, C Bregler
IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 30, No. 5, May 2008

Learning Motion Style Synthesis from Perceptual Observations

Lorenzo Torresani, Peggy Hackney, Christoph Bregler
Proc. Of Neural Information Processing (NIPS) 2007.

Learning to Synthesize Motion Styles

L. Torresani, P. Hackney, C. Bregler
Snowbird Learning Workshop, 2006

Squidball: An Experiment in Large Scale Motion Capture and Game Design

C. Bregler, C. Castiglia, J. DeVincenzo, L. Dubois, K. Feeley, T. Igoe, J. Meyer, M. Naimark, A. Postelnicu, M. Rabinovich, S. Rosenthal, K. Salen, J. Sudol, B. Wright
Proc. Intelligent Technologies for Interactive Entertainment (INTETAIN) 2005, Springer Lecture Notes in Artificial Intelligence

Mood Swings: Expressive Speech

Erika Chuang, Chris Bregler
Transactions on Graphics 2005

Speaking with Hands: Creating Animated Conversational Characters from Recordings of Human Performance

M. Stone, D. DeCarlo, I. Oh, C. Rodriguez, A. Stere, A. Lees, C. Bregler
Proc. *ACM SIGGRAPH* 2004.

Estimation of skeletal kinematics through high feature density video based motion capture

Gene Alexander, Tom Andriacci, Chris Bregler
Eighth International Symposium on the 3-D Analysis of Human, 2004

Twist based Acquisition and Tracking of Animal and Human Kinematics

Christoph Bregler, Jitendra Malik, Kathy Pullen
Int. *Journal of Computer Vision (IJCV)*, 56(3), 179-194, 2004.

Learning Non-Rigid 3D Shape from Video

Lorenzo Torresani, Aaron Hertzmann, Christoph Bregler
Proc. Of Neural Information Processing Systems (NIPS) 2003.

Nonrigid Modeling of Body Segments for Improved Bone Motion Estimation

Eugene J. Alexander, Christoph Bregler, Tom P. Andriacchi
Computer Modeling in Engineering and Science, Vol. 4, Number 3 & 4, pp. 351-364, 2003.

Facial Expression Space Learning,

Erika Chuang, Hrishi Deshpande, Christoph Bregler
Proc. *Pacific Graphics*, 2002.

Turning to the Masters: Motion Capturing Cartoons

Chris Bregler, Lorie Loeb, Erika Chuang, Hrishi Deshpande
Proc. *ACM SIGGRAPH* 2002, 399-407.

Motion-Capture assisted Animation: Texturing and Synthesis

Kathy Pullen, Chris Bregler
Proc. *ACM SIGGRAPH* 2002, 501-508.

CVPR Best Student Paper Award:

Tracking and Modelling Non-Rigid Objects with Rank Constraints

Lorenzo Torresani, Danny Yang, Gene Alexander, Christoph Bregler
Proc. *IEEE Computer Vision and Pattern Recognition (CVPR)*, 2001.

Limb Segment Pose from Range Data Streams Through Homogenous Factorization

Eugene J. Alexander, Christoph Bregler, Tom P. Andriacchi
BED-Vol.50, Bioengineering Conference ASME 2001.

Animating by Multi-level Sampling

Katherine Pullen and Christoph Bregler
Proc. *IEEE Computer Animation* 2000, 36-42.

Recovering Non-Rigid 3D Shape from Image Streams

Christoph Bregler, Aaron Hertzmann and Henning Biermann
Proc. *IEEE Computer Vision and Pattern Recognition (CVPR)*, 2000, 2/690-696.

From Motion Capture to Motion Texture

K. Pullen, C. Bregler
ACM SIGGRAPH 2000 Sketches.

Tracking People with Twists and Exponential Maps

Christoph Bregler and Jitendra Malik
Proc. *IEEE Computer Vision and Pattern Recognition (CVPR)*, 1998. 8-15.

Video Rewrite: Driving Visual Speech with Audio

Christoph Bregler, Michele Covell, and Malcolm Slaney
Proc. *ACM SIGGRAPH* 1997, 353-360.

Learning and Recognizing Human Dynamics in Video Sequences

Christoph Bregler
Proc. *IEEE Computer Vision and Pattern Recognition (CVPR)*, 1997.

Learning Appearance Based Models: Mixtures of Second Moment Experts

Christoph Bregler, Jitendra Malik
Advances in Neural Information Processing Systems (NIPS), 1996, 845-850.

Eigen-Points

Michele Covell, Christoph Bregler
Proc. *IEEE Int. Conf. on Image Processing (ICIP)*, 1996.

Finding Naked People

Margaret M. Fleck, David A. Forsyth, Christoph Bregler
Proc. *4th European Conf. Computer Vision, Cambridge, UK, (ECCV)* 1996, 594-602.

Finding Objects in Image Databases by Grouping

J. Malik, D. Forsyth, M. Fleck, H. Greenspan, T. Leung, C. Carson, S. Belongie, and C. Bregler
Proc. *IEEE Int. Conf. on Image Processing (ICIP-96), special session on "Images in Digital Libraries"*, 1996.

Nonlinear Manifold Learning for Visual Speech Recognition

Christoph Bregler, Stephen M. Omohundro
Int. Conf. Computer Vision (ICCV), 1995, 494-499.

Nonlinear Image Interpolation using Manifold Learning

Christoph Bregler, Stephen M. Omohundro
Advances in Neural Information Processing Systems (NIPS), 1994, 973-980.

"Eigenlips" for Robust Speech Recognition

Christoph Bregler, Yochai Konig
Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing, Adelaide, Australia, 1994.

Surface Learning with Applications to Lipreading

Christoph Bregler, Stephen M. Omohundro
Advances in Neural Information Processing Systems (NIPS), 1993, 43-50.

Improving Connected Letter Recognition by Lipreading

Christoph Bregler, Herman Hild, Stefan Manke, Alex Waibel
in *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, 1993.

Bimodal Sensor Integration on the Example of "Speechreading"

Christoph Bregler, Stefan Manke, Herman Hild, Alex Waibel
Proc. of IEEE Int. Conf. on Neural Networks, 1993.

KEY-NOTES, OTHER NON-PEER-REVIEWED PUBLICATIONS

Beyond The Kiss-Cam: Measuring The Fan With Computer Vision Based Analytics

George Williams, Ian Spiro, Chris Bregler
ESPN / MIT Sloan Sports Analytics Conference, Evolution of Sports Paper/Talk, March 2, 2013

Co-authored / Co-produced NY Times articles / features:

What Romney and Obama's Body Language Says to Voters, New York Times, October 2, 2012

How to Win: The High Dive, New York Times, August 9, 2012

One With the Water, New York Times, July 27, 2012

The Maestro's Mojo, New York Times, April 8, 2012

Connecting Music and Gesture, New York Times, April 6, 2012

The Eye of the Crowd

Christoph Bregler
Ends of Audience Conference Keynote, London, 2012, **invited paper** forthcoming in Journal of Participation, 2013

Video Based Speech Animation

Book Chapter with Malcolm Slaney,
Audiovisual Speech Processing. Vatikiotis-Bateson, E., G. Bailly & P. Perrier, Cambridge, UK.
Cambridge University Press. in press, 2013

Non-Rigid Models in Science and Entertainment

Christoph Bregler
Invited Talk & Abstract in Journal of Perception, APGV-ECVP Joint Symposium, Toulouse, August 28th, 2011

Next Gen Motion Capture: From the Silver Screen to the Stadium

Christoph Bregler

ESPN / MIT Sloan Sports Analytics Conference, Evolution of Sports Paper/Talk, March 4th, 2011

Key-Note: Open and Solved Problems in Norigid Motion Estimation

Christoph Bregler

4th Non-Rigid Shape Analysis IEEE CVPR 2011 Workshop, June 24, 2011

“Familiar but Strange: Exploring our Relationship with Robots”, New York Academy of Sciences Panel, December 5, 2011

“Technological Advances in Clinical Practice” American College of Sports Medicine Annual Conference at NYU Medical Center, November 12, 2011

Panel at TRIBECA DOOMSDAY FILM Festival, “The Singularity is Nigh”, New York City, October 22, 2011

Experiments in Crowd Gaming (Squidball 3) at Ars Electronica 2010 Festival

Sep 2 - 7, 2010

New York Times Magazine Interactive Feature for Mariano Rivera's Pitching Motion

July 4th, 2010 (Co-Producer)

Motion Capture Technology for Entertainment

C. Bregler, IEEE Signal Processing Magazine, November 2007

Symmetries of Dance

Y. Liu, X. Yang, M. Spivak, C. Bregler (TR CMU-RI 2007)

ACM SIGGRAPH Performance-Driven Facial Animation Course

Chris Bregler, SIGGRAPH, 2006

The Annual Reese Prosser Memorial Lecture: The Modern Mathematics of Motion

Capture – From Muybridge through Disney and Beyond, Dartmouth College, Oct, 2005

Invited I.E. Block Community Lecture (Plenary Talk) SIAM 50th Anniversary and 2002

Annual Meeting, Chris Bregler, Philadelphia, 2002

Key-Note Speaker at Dynamics Workshop, European Conference on Computer Vision (ECCV) 2002,

Key-Note Speaker at Vision, Modeling, and Visualization (VMV), 2000.

ACM SIGGRAPH Image Based Modeling and Rendering Course, 1998,1999,2000

Probabilistic Models of Verbal and Body Gestures

C.Bregler, S.Omohundro, M.Covell, M.Slaney, S.Ahmad, D.A.Forsyth, J.A.Feldman as chapter in *Computer Vision in Man-Machine Interfaces* (R. Cipolla and A.Pentland eds), Cambridge University Press, 1998

Video Rewrite

C.Bregler, M.Covell, M.Slaney

Machines that Learn, Snowbird, Utah, 1998

and
Imagina, Monaco, 1998

A Hybrid Approach to Bimodal Speech Recognition

C.Bregler, S.Omohundro, Y.Konig
in *Proc. of 28th Annual Asilomar Conf. on Signals, Systems, and Computers, Pacific Grove, CA 1994.*

Learning Visual Motion Models for Lip Reading

Christoph Bregler, Stephen M. Omohundro
Chapter in *Motion-Based Recognition*, (M. Sha and R. Jain eds), Kluwer Academic Press, 1996.

PATENTS:

Issued Patents:

US Patent 5,880,788: Automated synchronization of video image sequences to new soundtracks
Christoph Bregler
Issued March-9, 1999

US Patent 6,188,776: Principle component analysis of images for the automatic location of control points
Michele Covell, Christoph Bregler
Issued Feb-13, 2001

US Patent 6,888,549: Method, apparatus and computer program for capturing motion of a cartoon and retargetting the motion to another object
Christoph Bregler, Lorie Loeb
Issued May-03, 2005

US Patent 8649555 B1: Visual Tracking Framework
Bregler, Bhat, Allen.
Issued Feb 11, 2014

System, method and computer-accessible medium for providing body signature recognition
Bregler, Williams, McDowall, Rosenthal

System, method, software arrangement and computer-accessible medium for providing audio and/or visual information
Rosenthal, Bregler, Castiglia, DeVincenzo, DuBois, Feeley, Igoe, Meyer, Naimark, Postelnicu, Rabinovich, Salen, Sudol, Wright

OTHER MEDIA:

New York Times upcoming feature on 3D Ballet Capture with David Hallberg, 2015

WSJ, SlashGear, Gizmodo, Phys.org, Gigaom, Engadget, UK Daily Mail, PC Magazine, etc
Oculus snaps up Nimble, 13th Lab and Chris Bregler (various articles in 12/14)

Gigaom -- Researchers are using deep learning to predict how we pose. It's more important than it sounds, Oct 17, 2014.

Variety -- Academy Unveils 21 Feats on Oscar's Sci-Tech Short List, Aug 15, 2014

NPR Radio Interview for Bob Garfield's "ON THE MEDIA", April 26, 2013, ["THE FUTURE OF SURVEILLANCE"](#)

Scientific American Online, April 18, 2013, ["Crowd Watching: Video Analytics Could Flag Crimes Before They Happen"](#)

Time Magazine, March 14, 2013, 10 Ideas That Make A Difference, "Spy on Sports Fans"

New York Times 2012: The Year in Graphics, December 30, 2012 ("Olympics Diving", "Olympics One with the Water", "What Romney and Obama's Body Language Says to Voters", and "Connecting Music and Gesture (The Maestro's Mojo, Alan Gilbert and the NY Philharmonics)")

BBC World News, October 4, 7:30pm London Time, 2012, [Interview on Obama / Romney Presidential Debate](#)

CNN, August 24, 2012, ["Can 3-D movie technology improve an athlete's performance? Olympic gold medalist Dana Vollmer demos the future of athletic training"](#) VIDEO is [here](#)

CNN, August 24, 2012, ["Olympian Dana Vollmer demonstrates how she uses 3D movie technology to improve her swimming performance"](#)

ABC News, August 10, 2012, ["Olympics: Best Swimmers Are Like Dolphins"](#)

Scientific American, August 6, 2012, ["Dana Vollmer's Butterfly Stroke Features Dolphinlike Moves "](#)

National Geographic, France, August 7, 2012, ["La nageuse à l'aise comme un dauphin dans l'eau"](#)

TEDxNYU, April 14, 2012: NYU in Motion & Squidball

New York Times, April 13, 2012, In 3D: How Mariano Rivera Dominates Hitters (interactive feature on nytimes.com for 3D glasses)

PhysOrg feature, December 28 2011, ["Social robotics: Beyond the uncanny valley"](#)

Scienceline, January 3rd, 2010, ["Almost human – Navigating the uncanny valley"](#)

The Independent, October 4, 2011, ["How to dub a film"](#)

Scientific American, September 27, 2011, ["Something in the Way You Move: Cameras May Soon Recognize Criminals by Their Gait"](#) (Also at PBS News Hour)

New York Times, August 27, 2011, ["Animated or Real, Both Are Believable"](#)

NYU collaboration with **C-Mon and Kypski** on crowd-sourcing:

- [NYU Today](#) (May 17, 2011)
- [Futurity](#) (May 18, 2011)
- [Computer Vision Central](#) (May 18, 2011)
- [Presstext](#) (in German, May 18, 2011)
- [Gizmag](#) (May 19, 2011)
- [I Programmer](#) (May 21, 2011)
- [Ninja Marketing](#) (in Italian, May 25, 2011)
- [3voor12](#) (in Dutch, May 30, 2011)

- [Public Radio International: The World](#) (June 1, 2011)
 - also featured on [podcast](#) (June 17, 2011)
- [The Fox is Black](#) (June 2, 2011)
- [Radio Netherlands Worldwide](#) (June 8, 2011)
- [Nonblok.com](#) (in Indonesian, June 10, 2011)

Discovery/Science Channel, December 29, 2010, [NYU 3D Innovation Nation](#) by Miles O'Brien (a CBS / NSF produced short segment about the NYU Movement Lab)

DiscoveryNews (Discovery Channel online), October 6, 2010, "Athletes Use 3-D Imaging to Improve Their Game"

The New York Observer, October 4, 2010, "Computer Avatars Train Pro Athletes At NYU's Movement Lab"

New York Times, October 3, 2010, Page A1, "From the 'Avatar' Playbook, Pro Teams Adopt 3-D Imaging"

Crowd2cloud show at Ars Electronica Festival 2010, Linz, Austria:

ORF 2 TV, Interview, August 29, 2010

WIRED Blog, Squidball in "Hallucinatory Art Snags Attention ...", August 31, 2010

ORF FM4, September 4, 2010

Repair TV, September 5, 2010

Servus TV, September 11, 2010

New York Times Magazine, 4th of July, NYU Movement Lab created 3D reconstructions for Interactive Feature "Rivera's Cut Fastball" for "Mariano Rivera, King of the Closers" article.

NYU Today July 1, 2010, "NYU's Movement Lab Reconstructs Mariano Rivera's Pitching Motion for Animated 3D Look at His Delivery"

International Business Times, July 1, 2010, "3D Motion Capture Recreates Yankees Closer"

NYU Today, Vol 22, No 11, 2009 "Bregler Receives \$1.47 Million Grant to Enhance Motion Capture Tools"

CIMS Alumni, Fall 2009, "Chris Bregler: A Motion Capture Expert Who's Always on the Move"

Technology Review, interview (quoted) for APRIL 29, 2009, Second Skin Captures Motion

NYU Today, Vol 22, No 98, 2008 "Tina Fey Moves Like Sarah Palin, NYU Researchers Find"

CBSnews.com, UWIRE, Washington Square News, Nov 17, 2008, NYU Analysis Finds Fey's Palin Near Perfect

Kerrang Radio, UK, Interview on GreenDot Project, Nov 5, 2008

BoingBoing 10/27 2008, GreenDot Project, "Biometric Identification by body language"

Der Spiegel Online 10/29 2008 GreenDot Project

Interviewed (quoted) for NewScientist Nov 26, 2007, "Cheap sensors could capture your every move"

New York Academy of Science Magazine, Autumn 2007, "Winning Science".

NYU Alumni Magazine, Fall 2007, "Movers, shakers and ... software"

Business Week, April 2nd, 2007: Video Interview on businessweek.com, & NYU's Mocap Suit made the cover.

NYU Today "Courant Students Explore Body Movement with Laban Analysis", Oct 24, 2005

SIGGRAPH 2004 Interviews:

Animation Magazine, Sep 2004, "The Quest for the Best Eye Candy"
Animation Magazine, Sep 2004, "The Next MoCap Frontier: Animation With Soul"
Computer Graphics World, Aug 2004, Portfolio, SIGGRAPH Electronic Theater
Computer Graphics World, Sep 2004, Portfolio, SIGGRAPH Animation Theater
Variety, August 9-15, 2004, "Aping Mother Nature"
Hollywood Reporter, Aug 6-8, 2004, "Geek Week"
Millimeter Magazine, June 2004, "An Animation Celebration"
Video Systems, June 2004, "An Animation Celebration"
Millimeter Magazine, May 4, 2004, "SIGGRAPH Announces Best Animated Short & Jury Award"
VFX Pro, May 4, 2004, "SIGGRAPH Announces Best Animated Short & Jury Award"
Shoot, Aug 6, 2004, "Fine Art Collection"
CG Channel, 07/20/04, "SIGGRAPH Computer Animation Festival"
Animation Flash, June 26, 2004, SIGGRAPH Sets Computer Animation Festival Program
Sony Pictures Imageworks Moves forward with IMAGE MOTION (in Channel 5 News, VFXWorld)
NHK (Main Japanese TV). Sep-19, 2004 1h documentary "Digital Stadium: SIGGRAPH2004 Special"
G4Tech TV, Aug 11, 2004

New York Times, 10/09/03, "Decoding the Subtle Dance of Ordinary Movements"
New York 1 TV, 08/13/03, NYU Motion Capture Lab Coverage
SIAM News, Vol 36, 3, 04/03, "Step by Step" (Article about Kathy Pullen + some of our research)
Technology Review, 11/30/02, "Automating Animation"
Computer Graphics World, 02/20, "Masterful Animation"
CG Focus, 12/03/01, "Cartoon Motion Capture"
Technology Review, 06/30/00, "Lying With Pixels"
NBC Nightly News, 09/14/97, Video Rewrite coverage
Los Angeles Times, 09/01/97, "Watch What They Say –Even If They Didn't"

OTHER ENTREPRENEURIAL ACTIVITY:

Developed partnership between **Digitas North America** and **Manhattan Mocap / NYU**, December, 2012. -- Press Release: bit.ly/UIP9WL
Digitas is the largest digital brand agency in the U.S. with clients such as American Express, Master Card, Delta, Comcast, Puma, Emerson, Sprint, Olympics, US Open, etc.
Created & direct new studio & motion capture lab at Digitas that occupies 8,000+ square feet floor at Digitas's NYC headquarter. This space is used for NYU non-profit research, and for-profit development of new brand based experiences and product campaigns.

HackNY, Admissions Committee, 2012

A New York City-based initiative seeking to create and empower a community of student-technologists

Advisory Board, MaMoCa, Los Angeles, since 2006, sold to Motion Analysis in 2011.

Advisory Board, Machine Perception Technologies, San Diego, Jan 2008 to Jan 2013

Board of Directors, SONA Research, San Francisco, since 2009

SONA Research founder and CEO: Scott Snibbe. Clients include Philip Glass, Björk, LAX.

Executive Producer & Festival Chair of SIGGRAPH 2004 Electronic Theater, Computer Animation Festival, and Squidball Preshow: Assembled and led production team, jury, staff of 37 people and produced largest Motion Capture Game and Electronic Theater show (according to World Records in the Motion Capture Society). Created partnerships with HBO Studio Productions, Curious Pictures, Psyop, ILM, and secured funding from Apple, AMD, Vicon, Segway, and 3DTV.

Partner, Yellow Computing, Mobile Devices Startup, 1988-1991, Developed PDA software and sync apps (precursor for Palm devices)

Founder, CB Software, Startup, Germany, 1985-1991. Developed software products with European wide distribution.