

CURRICULUM VITÆ

Hiroaki Masuda, Ph.D.

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HIGHLIGHTS OF QUALIFICATIONS

- Strong conceptual/logical and planning/project abilities based on interdisciplinary expertise in science, technology, and business.
- Four years of experience in strategy and project development for non-profit organization and US-Japan bridging companies in the fields of science, technology, and human health.
- Nine years of experience in professional consulting for scientists, technologists, engineers, and medical doctors to maximize their research and project outputs.
- Four years of experience in algorithm development to support medical doctors to find early stage of breast and lung cancer barely manifested on X-ray and CT images.
- Ten years of experience as a Ph.D. research scientist in experimental high energy physics and elementary particle physics with extensive involvement in R&D, detector hardware construction, Online&Offline software development, Monte Carlo simulation study, and data analysis.
- Four years of experience in managing and protecting intellectual property, including patent applications in the US, Japan, Europe, and Asia.

EDUCATION

- Ph.D. in Experimental High Energy Physics, March 1988
Nagoya University, Nagoya, Japan
- Master of Science degree in Engineering, March 1985
Kyoto University, Kyoto, Japan
- Bachelor of Science degree in Physics, March 1983
Kyoto University, Kyoto, Japan

PROFESSIONAL EXPERIENCE

Executive Director

2004 to present

Center for the Advancement of Health and Biosciences (US NPO), Menlo Park, CA

- Planning to establish a new *in vivo* research center for basic and translational biomedical researches by using the best matched animal models for the target human diseases.
- Organizing scientific seminars for community, including scientists, engineers, medical doctors, business developers, and venture capitalists.
- Giving consultation to professionals, including scientists, engineers, and medical doctors, to extract maximum output from their research by providing pin-point suggestion based on the 16+ years of advanced scientific experience.
- Providing scientific and technical evaluation on new technologies, including magnetic freezing technology and medical imaging, such as, MRI and CT, for engineers and technologists.
- Providing a professional service to manage intellectual property and patents for research institutions.

- Responsible in publishing monthly newsletter to provide the latest information about biosciences and human health.
- Managing organization's web site (<http://www.cahb.org/>).

Associate Professor *2006 to present*
Tohoku University, Global Strategic Development, Los Altos, CA and Sendai, Japan

- Successfully organized the opening ceremony of Tohoku University US Office and the 1st Tohoku University International Innovation Forum by inviting internationally prominent experts and professionals in diverse fields, which were held on April 26 and 27, 2007 in San Mateo, CA.
- Integrating interdisciplinary efforts of the university's basic researches, including physics, material science, biomedical science, and engineering, with those of other institutions and organizations all over the world to contribute to global humanity.

Vice President and Chief Technology Officer *2004 to present*
CLEA International, Inc., Menlo Park, CA

- Directing employees to achieve successful goals for the company.
- Organizing booth exhibition and publishing conference reports at international conferences.
 - 46th Society of Toxicology Annual Meeting, Charlotte, NC, 3/5 – 3/9/2007
 - 57th AALAS National Meeting, Salt Lake City, UT, 10/15 – 10/19/2006
 - 45th Society of Toxicology Annual Meeting, San Diego, CA, 3/5 – 3/9/2006
 - 56th AALAS National Meeting, St. Louis, MO, 11/6 – 11/10/2005
 - 44th Society of Toxicology Annual Meeting, New Orleans, LA, 3/6 – 3/10/2005
 - 55th AALAS National Meeting, Tampa, FL, 10/17 – 10/21/2004

Co-Founder and Chief Technology Officer *2004 to present*
Menlo Biomedix, Inc., Menlo Park, CA

- Successfully founded the company with business partners in 2004.
- Organizing publication of reports based on actual attendance to conferences, exhibitions, forums, and seminars, as well as actual visit to government offices, hospitals, and Universities.
 - BIO 2006 Annual International Convention, Chicago, 4/9 – 4/12/2006
 - Aichi prefecture government office and hospitals, Aichi, Japan, July – September, 2005
 - BIO 2005 Annual International Convention, Philadelphia, 6/19 – 6/22/2005
 - BIO 2004 Annual International Convention, San Francisco, 6/6 – 6/9/2004
- Responsible in publishing company's newsletter to provide the latest information about biosciences and human health.
- Managing company's web site (<http://www.menlobiomedix.com/>).

Staff Scientist *1998 to 2003*
R2 Technology, Inc., Sunnyvale, CA

- Developed Computer Aided Detection (CAD) algorithm for breast and lung cancer to identify malignant lesions on mammograms as a sign of cancer in as early stage as possible. The developed algorithm was the core of the company's main products that produced annual revenue of more than \$100,000,000.
- Developed process automation tools to effectively test the CAD algorithm on a large size of test database of breast cancer with minimum human intervention.
- Responsible in evaluating a performance of the CAD algorithm on more than five thousand

mammogram images and providing statistical data for documents submitted to Food and Drug Administration (FDA) for the company's product approval.

- Reviewed more than five thousand cancer cases on mammogram and CT images.

Assistant Research Scientist
University of Iowa, Iowa City, IA

1996 to 1998

- Lead a team and supervised graduate students and technicians to perform R&D projects for a sub-atomic particle detector, front-end electronics system, and data acquisition system. Performed comprehensive tests of the system, including detailed studies of signal shape from radiative photon sources and cosmic muons, and those of electronics calibration and energy calibration.
- Tested and evaluated a performance of a sophisticated analog electronics system of a sub-atomic particle detector. Supervised graduate students and technicians.
- Organized and managed WWW contents on a local WWW server providing information to users.

Visiting Scientist
Stanford Linear Accelerator Center, Stanford, CA

1988 to 1996

- Worked in a team to construct a wire chamber for charged particle detection. Supervised technicians stringing wires, checking wire tensions and dark currents, and installing cable plants for a high-voltage distribution system for the chamber. Performed complete test of wire deflections under the combined influences of gravitational and electrostatic forces. The chamber has been operating for more than seven years and its performance has met and exceeded all design goals.
- Tested a silicon detector utilizing charge-coupled devices (CCDs). This test included controlling humidity and liquid nitrogen cooling system at a very stable condition.
- Responsible for overseeing offline data processing for a high energy physics experiment. This effort included close contact with offsite collaborators (about 300 physicists across more than 15 countries worldwide) during data taking periods.
- Developed online event monitor for the wire chamber, used to check chamber performance and data quality. This monitor program has been used for more than seven years after its implementation.
- Coordinated a physics analysis group for a measurement of α_s , one of the most fundamental parameters in elementary particle physics. Supervised graduate students and staff members performing comprehensive physics analyses. Worked also on a new procedure to reduce dominant theoretical errors in determination of the parameter.
- Supervised graduate students in the development of several new experimental observables, to characterize basic properties of elementary particles.
- Performed a Monte Carlo study to check feasibility for exploring another fundamental parameter in elementary particle physics. Extensive use of Monte Carlo technique was involved.

PH.D. THESIS ADVISING

- Yoji Hasegawa, SLAC & Tohoku University, 1994 to 1995
“A search for jet handedness in hadronic Z^0 decays”
- Yoshihito Iwasaki, SLAC & Tohoku University, 1994 to 1995
“A measurement of quark and gluon jet differences at the Z^0 resonance”
- Yukiyoshi Ohnishi, SLAC & Nagoya University, 1994 to 1995
“An experimental study of QCD and jets in e^+e^- annihilation”

LIST OF PUBLICATIONS

Ph.D. Thesis

- “A Study of Multihadron Production at TRISTAN”
Advisor: Professor Ryoichi Kajikawa, Nagoya University, Japan.
DPNU-88-52, Dec 1987. 75pp.

Conference Proceedings

- “A search for jet handedness in hadronic Z^0 decays”
Proceedings of the XXVII International Conference on High Energy Physics, Glasgow, Scotland, July 20-27, 1994, edited by P.J. Bussey and I.G. Knowles (Institute of Physics Publishing, Bristol and Philadelphia, 1995), p. 863.
- “A study of jet handedness at the Z^0 resonance”
Proceedings of the International Europhysics Conference on High Energy Physics, Marseille, France, July 22-28, 1993, edited by J. Carr and M. Perrottet (Editions Frontiers, 1994) p. 306.
- “A Monte Carlo study of $B_0 - \bar{B}_0$ mixing in decays of Z^0 s produced with a polarized electron beam”
Proceedings of the 10th International Symposium on High Energy Spin Physics, Nagoya, Japan, November 9-14, 1992, edited by T. Hasegawa et al. (Universal Academy Press, 1993) p. 649.

Journal Articles: The SLD collaboration

- “Measurement of the charged multiplicities in b , c and light quark events from Z^0 decays”
SLD Collaboration (K. Abe *et al.*), *Physics Letters* B386, 475 (1996).
- “Comparison of a new calculation of energy-energy correlations with hadrons data at the Z^0 resonance”
SLD Collaboration (K. Abe *et al.*), *Physical Review* D52, 4240 (1995).
- “A search for jet handedness in hadronic Z^0 decays”
SLD Collaboration (K. Abe *et al.*), *Physical Review Letters* 74, 1512 (1995).
- “Measurement of α_s from hadronic event observables at the Z^0 resonance”
SLD Collaboration (K. Abe *et al.*), *Physical Review* D51, 962 (1995).
- “Measurement of α_s from energy-energy correlations at the Z^0 resonance”
SLD Collaboration (K. Abe *et al.*), *Physical Review* D50, 5580 (1994).
- “Measurement of α_s from jet rates at the Z^0 resonance”
SLD Collaboration (K. Abe *et al.*), *Physical Review Letters* 71, 2528 (1993).

Journal Articles: QCD study

- “Application of Pade approximants to determination of α_s from Hadronic Event Shape Observables in e^+e^- Annihilation”
P.N. Burrows, T. Abraha, M. Samuel, E. Steinfelds and H. Masuda, *Physics Letters* B392, 223 (1997)
- “Application of ‘Optimized’ Perturbation Theory to Determination of α_s from Hadronic Event Shape Observables in e^+e^- Annihilation”
P.N. Burrows, H. Masuda, D. Muller and Y. Ohnishi, *Physics Letters* B382, 157 (1996).
- “On the applicability of finite order perturbative QCD calculations of jet rates in e^+e^- annihilation”
P. N. Burrows and H. Masuda, *Z. Physics* C63, 235 (1994)

Journal Articles: The SLD/CDC group

- “Performance of the SLD central drift chamber”
M. D. Hildreth *et al.*, *Nuclear Instruments and Methods* A367, 111 (1995).

Journal Articles: The TOPAZ collaboration

- “Search for top quark in e^+e^- collisions at $\sqrt{s}=52$ GeV”
TOPAZ Collaboration (I. Adachi *et al.*), *Physical Review Letters* 60, 97 (1988).

Journal Articles: With collaborators in Nagoya University

- “The gas sampling electromagnetic calorimeter using conductive plastic tubes”
J. Fujimoto *et al.*, *Nuclear Instruments and Methods* A256, 449 (1987).
- “Cathode readout of limited streamer tubes with conductive plastic walls”
J. Fujimoto *et al.*, *Nuclear Instruments and Methods* A252, 53 (1986).

Journal Articles: Contributed

- “Design and performance of the SLD vertex detector, a 307 Mpixel tracking system”
K. Abe *et al.*, *Nuclear Instruments and Methods* A400, 287 (1997).
- “Direct measurement of leptonic coupling asymmetries with polarized Z’s”
SLD Collaboration (K. Abe *et al.*), *Physical Review Letters* 79, 804 (1997).
- “Measurement of leading particle effects in decays of Z^0 bosons into light flavors”
SLD Collaboration (K. Abe *et al.*), *Physical Review Letters* 78, 3442 (1997), Erratum-ibid. 79, 959 (1997)
- “Measurement of the τ neutrino helicity and the Michel parameters in polarized e^+e^- collisions”
SLD Collaboration (K. Abe *et al.*), *Physical Review Letters* 78, 4691 (1997).
- “An improved measurement of the left-right Z^0 cross-section asymmetry”
SLD Collaboration (K. Abe *et al.*), *Physical Review Letters* 78, 2075 (1997).
- “First measurement of the left-right charge asymmetry in hadronic Z boson decays and a new determination of $\sin^2\theta_{\text{eff}}$ ”
SLD Collaboration (K. Abe *et al.*), *Physical Review Letters* 78, 17 (1997).
- “First study of rapidity gaps in e^+e^- annihilation”
SLD Collaboration (K. Abe *et al.*), *Physical Review Letters* 76, 4886 (1996).
- “Factorial and cumulant moments in hadrons at the Z^0 Resonance”
SLD Collaboration (K. Abe *et al.*), *Physics Letters* B371, 149 (1996).
- “Measurement of the Left-Right Forward-Backward asymmetry for charm quarks with D^{*+} and D^+ mesons”
SLD Collaboration (K. Abe *et al.*), *Physical Review Letters* 75, 3609 (1995).
- “Measurement of average B hadron lifetime in Z decays using reconstructed vertices”
SLD Collaboration (K. Abe *et al.*), *Physical Review Letters* 75, 3624 (1995).
- “First measurement of the T odd correlation between the Z^0 spin and the three jet plane orientation in polarized Z^0 decays to three jets”
SLD Collaboration (K. Abe *et al.*), *Physical Review Letters* 75, 4173 (1995).
- “Measurement of the τ lifetime at SLD”
SLD Collaboration (K. Abe *et al.*), *Physical Review* D52, 4828 (1995).
- “Measurements of R_b with impact parameters and displaced vertices”
SLD Collaboration (K. Abe *et al.*), *Physical Review* D53, 1023 (1996).
- “A test of the flavor independence of strong interactions”
SLD Collaboration (K. Abe *et al.*), *Physical Review* D53, 2271 (1996).
- “Measurement of the parity-violation parameter A_b from the left-right forward-backward asymmetry of b quark production in Z^0 decays using a momentum-weighted track-charge technique”
SLD Collaboration (K. Abe *et al.*), *Physical Review Letters* 74, 2890 (1995).
- “Measurement of A_b and A_c from the left-right forward-backward asymmetry of leptons in hadronic events at the Z^0 resonance”
SLD Collaboration (K. Abe *et al.*), *Physical Review Letters* 74, 2895 (1995).
- “Polarized bhabha scattering and a precision measurement of the electron neutral current couplings”
SLD Collaboration (K. Abe *et al.*), *Physical Review Letters* 74, 2880 (1995).
- “Precise measurement of the left-right cross-section asymmetry in Z boson production by e^+e^- collisions”
SLD Collaboration (K. Abe *et al.*), *Physical Review Letters* 73, 25 (1994).
- “Measurement of the charged multiplicity of $Z^0 \rightarrow b-\bar{b}$ events”
SLD Collaboration (K. Abe *et al.*), *Physical Review Letters* 72, 3145 (1994).

- “*First measurement of the left-right asymmetry in Z boson production*”
SLD Collaboration (R.D. Elia *et al.*), *Modern Physics Letters A* 8, 2237 (1993).
- “*First measurement of the left-right cross-section asymmetry in Z boson production by e^+e^- collisions*”
SLD Collaboration (K. Abe *et al.*), *Physical Review Letters* 70, 2515 (1993).
- “*QCD studies of hadronic decays of Z^0 bosons by SLD*”
SLD Collaboration (K. Abe *et al.*), Proceedings of the XXVI International Conference on High Energy Physics, Dallas, Texas, August 6-12, 1992, edited by James R. Sanford (American Inst. Phys., New York, 1993), p. 892.
- “*First QCD results from SLD*”
SLD Collaboration (P.N. Burrows *et al.*), Proceedings of the XXVIIth Rencontre de Moriond, Perturbative QCD and Hadronic Interactions, edited by J.T.T. Van (Editions Frontiers, France, 1992) p. 43.
- “*Intermediate-energy PP phase shifts to 1000-MeV*”
Y. Higuchi *et al.*, *Progress of Theoretical Physics* 88, 1019 (1992).
- “*Intermediate energy NN phase Shift. I*”
Y. Higuchi *et al.*, *Progress of Theoretical Physics* 86, 17 (1991).
- “*Search for SUSY particles in e^+e^- annihilation at TRISTAN*”
TOPAZ Collaboration (I. Adachi *et al.*), *Physics Letter B* 218, 105 (1989).
- “*Measurement of the processes and at $\sqrt{s} = 52$ GeV*”
TOPAZ Collaboration (I. Adachi *et al.*), *Physics Letter B* 200, 391 (1988).
- “*Charge asymmetry measurement in and reactions at $\sqrt{s} = 52$ GeV*”
TOPAZ Collaboration (I. Adachi *et al.*), *Physics Letter B* 208, 319 (1988).
- “*Search for sequential heavy leptons in e^+e^- collisions at $\sqrt{s} = 52$ GeV*”
TOPAZ Collaboration (I. Adachi *et al.*), *Physical Review D* 37, 1339 (1988).

LIST OF PRESENTATIONS

Invited Presentations at International Conferences:

- “*A Search for Jet Handedness in Hadronic Z^0 Decays*”
27th International Conference for High Energy Physics, Glasgow, Scotland, July 23, 1994
- “*A Study of Jet Handedness at the Z^0 Resonance*”
International Europhysics Conference on High Energy Physics, Marseilles, France, July 23, 1993
- “*A Monte Carlo Study of $B_0 - \bar{B}_0$ Mixing in Decays of Z^0 s Produced with a Polarized Electron Beam*”
10th International Symposium of High Energy Spin Physics, Nagoya, Japan, November 12, 1992

Seminars:

- “*A Search for Jet Handedness in Hadronic Z^0 Decays*”
- SLAC experimental seminar, SLAC, Stanford, CA 94309, USA, October 18, 1994
- “*Experimental Results from SLD at the SLAC Linear Collider*”
- Hiroshima University, Higashi-Hiroshima, Japan, November 30, 1993
- Tohoku University, Sendai, Japan, November 22, 1993
- Nagoya University, Nagoya, Japan, January 19, 1993
- “*Current Status and Future Prospects of SLD/SLC*”
- KEK Experimental Seminar, KEK, Tsukuba, Japan, November 22, 1992
- Tohoku University, Sendai, Japan, November 20, 1992
- Nagoya Univ., Nagoya, Japan, November 16, 1992

Other Presentations:

- “*Recent QCD Results from SLD*”
Special lecture at 50th General Meeting of Japan Physical Society, Yokohama, Japan, March 29, 1995
- “*Results from SLC/SLD Engineering Run*”
46th General Meeting of Japan Physical Society, Sapporo, Japan, September 29, 1991