

ประวัติผู้เขียน

1. หัวหน้าโครงการ

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ประวัติการศึกษา

วุฒิ	ปีที่สำเร็จ	สาขาวิชา	สถาบัน
B.SC. (Radation Tech.)	2528	Radiation Technology	ม.มหิดล
M. Sc.(Biomedical Inst.)	2532	Biomedical Instrumentation	ม.มหิดล
M.E.(Biomedical Engineer)	2538	Biomedical Engineering	WPI, USA
Ph.D.(Biomedical Engineer)	2543	Biomedical Engineering	Drexel , USA

บทความวิจัย

a) International referred journal

- [1]. F. S. Cohen, W. S. I. Ali, and **C. Pintavirooj**, "Ordering and Parameterizing Scattered 3D data for B-Spline Surface Approximation," IEEE Trans. Patt. Anal. Machine Intell., 22, 6, pp. 642-648, 2000.
- [2] **C. Pintavirooj**, A. Ngamlamiad, A. Romputtal, W. Withayachumnankul, K. Hamamoto, "Ultrasonic Refractive Index Tomography," Journal of The 12-th International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision 2004 (WSCG2004), vol. 12, no. 2, pp. 333-340, Plzen, Czech Republic, February 2-6, 2004. Plzen, Czech Republic, February 2-6, 2004.
- [3] P. Putjarupong, **C. Pintavirooj**, W. Withayachumnankul, M. Sangworasil, "Image Registration Exploiting Five-Point Coplanar Perspective Invariant and Maximum Curvature Point", Journal of The 12-th International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision 2004 (WSCG2004), vol. 12, no. 2, pp. 341-348, Plzen, Czech Republic, February 2-6, 2004. Plzen, Czech Republic, February 2-6, 2004.
- [4] F. S. Cohen and **C. Pintavirooj**, "Invariant surface Alignment in the Presence of Affine and some Non-linear Transformation," Medical Image Analysis, Elsevier Science, vol. 8, pp. 151-164, June 2004.

b) Internation referred proceeding

- [1]. F. S. Cohen and **C. Pintavirooj**, "Invariant surface Alignment in the Presence of Affine and some Non-linear Transformation," in Proc. IEEE workshop on Mathematical Methods in Biomedical Image Analysis (MMBIA), pp. 78-85, 2000.
- [2] **C. Pintavirooj**, W. Withayachumnankul, S. Tungjitkusolmun and K. Chitsakul, "3D Shape Recovery Based on Image Reconstruction from Projection", International Symposium on Communications and Information Technology (ISCIT2001), Chiangmai, November 14th –16th, 2001.
- [3] **C. Pintavirooj**, C. Ninkaew, M. Sangworasil, and K. Hamamoto, 3D Visualization from Radiograph, International Symposium on Communications and Information Technology (ISCIT2001), Chiangmai, November 14th –16th, 2001.

- [4] **C. Pintavirooj** and M. Sangworasil³, "3D Shape Recovery Based on Radon Transform", DICTA2002: Digital Image Computing Techniques and Applications, Melbourne, Australia, January 21st-22nd, 2002.
- [5] **C. Pintavirooj** and M. Sangworasil, "3D Modeling Based on Radon Transform with Application in Volume Measurement", International Conferences in Central Europe on Computer Graphics, Visualization and Computer Vision, Czech Republic, February 4th–8th, 2002.
- [6] W. Withayachumnankul, **C. Pintavirooj**, M. Sangworasil, and K. Hamamoto, "3D Shape Recovery Based on Tomography," Proc. ICSP, Beijing, China, October 2002, pp. 784-787.
- [7] P. Ungpinitpong, **C. Pintavirooj**, P. Lertprasert, and M. Sangworasil, "Improved 3D Visualization from X-Ray Radiograph Using Algebraic Reconstruction Technique," Proc. ISCIT 2002, Phattaya, Thailand, October 2002.
- [8] W. Withayachumnankul, K. Hamamoto, **C. Pintavirooj**, and P. Suwanna, "A Computational Analysis of Ultrasonic Reflection Mode Tomography Using Frequency-Shift Method," Proc. ISCIT2002, Phattaya, Thailand, October 2002, pp. 174-177.
- [9] **C. Pintavirooj**, T. Rattana, W. Withayachumnankul, and M. Sangworasil, "3D Modeling Using Cone-Beam Tomography," Proc. ISCIT 2002, Phattaya, Thailand, October 2002, pp. 178-181.
- [10] P. Ungpinitpong, S. Ngamanekrat, K. Sepsirisuk, **C. Pintavirooj** and M. Sangworasil, "3D Visualization from X-Ray Radiograph using Algebraic Reconstruction Technique" Proc. ICBME, Sigapore, December 2002.
- [11] W. Withayachumnankul, A. Romputtal, **C. Pintavirooj**, and S. Taertulakarn, "An Investigation on Ultrasonic Attenuation Tomography Using the Integrated Power Spectrum Ratio Method," Proc. ICBME, Sigapore, December 2002.
- [12] N. Pantsaena, N. Banditwong, M. Sangworasil, **C. Pintavitrooj**, S. Airphaiboon, "A Large Scale Medical Volume Rendering on Clustering System," Proc. ITC-CSCC 2003, Korea, July 2003.
- 1. [13] P. Ungpinitpong, S. Ngamanekrat, **C. Pintavirooj** and M. Sangworasilp, "SART: AN APPROACH TO IMPROVE 3D VISUALIZATION FROM LIMITED VIEWS OF X-RAY RADIOGRAPHS", World Congress on Medical Physics and Biomedical Engineering (WC2003), Sydney, Australia, August 2003.

- [14] N. Pantaena, A. Ngamlaiad, **C. Pintavirooj**, Manas Sangworasil and K. Sepsirisuk, "FAST VOLUME RENDERING ON CLUSTERING SYSTEM", World Congress on Medical Physics and Biomedical Engineering (WC2003), Sydney, Australia, August 2003.
- [15] S. Taertulakarn, A. Romputtan, **C. Pintavirooj** and W. Withayachumnankul, "Algebraic Reconstruction Technique for Ultrasonic Computed Tomography", World Congress on Medical Physics and Biomedical Engineering (WC2003), Sydney, Australia, August 2003.
- [16] W. Withayachumnankul, P. Putjarupong, **C. Pintavirooj**, and P. Lertprasert, "MEASUREMENT THE AREA AND VOLUME WITH PHOTOGRAPHIC TOMOGRAPHY", World Congress on Medical Physics and Biomedical Engineering (WC2003), Sydney, Australia, August 2003.
- [17] S. Ngamanekrat, **C. Pintavirooj**, T. Kiriratnikom, and S. Anuntaseree, "IMPROVE 3D VISUALIZATION FROM RADIOGRAPH FOR C-ARM X-RAY APPRATUS USING SART", Proc. ISCIT 03, Songkhla, Thailand, September 2003.
- [18] Nopparat Pantaena, Prakit Engkakitti, Boonwat Attachoo, **Chuchart Pintavirooj** and Manas Sangworasil, "FAST VOLUME RENDERING ON CLUSTERING SYSTEM USING A SHEAR-WARP FACTORIZATION", Proc. ISCIT 03, Songkhla, Thailand, September 2003.
- [19] A. Romputtal, **C. Pintavirooj**, P. Lertprasert and W. Withayachumnankul, "ULTRASONIC COMPUTED TOMOGRAPHY USING ALGEBRAIC RECONSTRUCTION ALGORITHMS", Proc. ISCIT 03, Songkhla, Thailand, September 2003.
- [20] W. Withayachumnankul, P. Putjarupong, **C. Pintavirooj**, and P. Lertprasert, "3D SHAPE EXTRACTION USING PHOTOGRAPHIC TOMOGRAPHY WITH ITS APPLICATION", Proc. ISCIT 03, Songkhla, Thailand, September 2003.
- [21] S. Reruag, W. Withayachumnankul, **C. Pintavirooj**, S. Airphaiboon, "3D Shape Extraction Using Photographic Tomography with Its Application," Proceedings of WSCG2004, Plzen, Czech Republic, February 2-6, 2004.
- [22] J. Plodpai, **C. Pintavirooj**, and S. Airphaiboon, "Active Contours: Application toward Segmentation Step of Automatic Chromosome Analysis," The 1st ECTI Annual Conference (ECTI-CON 2004), Pattaya, Thailand, May 2004
- [23] J. Theerapatanakul, J. Podpai, S. Mooyen, and C. Pintavirooj, "Classification of White Blood Cell Using Adaptive Contour," ICCAS'04, Bangkok, Thailand, August 25-27, 2004.

- [24] W. Narkbuakaew, S. Ngamanekrat, W. Withayachumnankul, **C. Pintavirooj** and M. Sangworasil, "Center Determination for Cone-Beam X-ray Tomography", International Conference on Control, Automation and Systems, ICCAS'04, Bangkok, Thailand, August 25-27, 2004.
- [25] S. Kawikitwicha, **C. Pintavirooj**, T. Kiriratnikom, S. Anuntaseree, and P. Tosranon. "3D Modeling from Radiograph with Conebeam Geometry", IEEE TENCON2004, Chiangmai, Thailand, November 2004.
- [26] S. Reruag, W. Withayachumnankul, **C. Pintavirooj**, S. Airphaiboon and **P. Lertpasert**, " 3D SHAPE EXTRACTION OF LARGE OBJECT USING PHOTOGRAPHIC TOMOGRAPHY ", IEEE TENCON2004, Chiangmai, Thailand, November 2004.
- [27] P. Putjarupong, **C. Pintavirooj**, W. Withayachumnankul, M. Sangworasil , "Non-Linear Image Registration using Perspective Invariant and Thin-Plate Spine", IEEE TENCON2004, Chiangmai, Thailand, November 2004.
- [28] **C. Pintavirooj**, K. Jaruwongrungsee, W. Withayachumnankul K. Hamamoto^{*} and , S. Teartulakarn "Ultrasonic Refractive Index and Sound Velocity Tomography", IEEE TENCON2004, Chiangmai, Thailand, November 2004.
- [29] J. Theerapattanakul, J. Plodpai, S. Mooyen and **C. Pintavirooj** , "An Efficient Method for Segmentation Step of Automated White blood Cell Classifications ", IEEE TENCON2004, Chiangmai, Thailand, November 2004.
- [30]. "3D Modeling from Radiograph with Conebeam Geometry", IEEE TENCON2004, Chiangmai, Thailand, November 2004.
- [31] **C. Pintavirooj**, K. Jaruwongrungsee, W. Withayachumnankul, M. Sangworasil, K. Hamamoto and G. Tangtisanon, " Ultrasonic Diffraction Tomography : The Experimental Result", International Conferences in Central Europe on Computer Graphics, Visualization and Computer Vision (WSCG2005) , Czech Republic, January 31st - February 4th , 2005.
- [32] **C.Pintavirooj**, W.Narkbuakaew, W.Withayachumnankul and M.Sangworasil, "3D Modeling from Multiple Projections: Parallel-Beam to Helical Cone-Beam Trajectory", International Conferences in Central Europe on Computer Graphics, Visualization and Computer Vision (WSCG2005) , Czech Republic, January 31st - February 4th , 2005.

- [33] B. Laksanapanai, W. Withayachumnankul , **C. Pintavirooj**, "HARDWARE-ACCELERATED OBJECTIVE FUNCTION EVALUATION", IEEE TENCON2004, Chiangmai, Thailand, November 2004
- [34] **C. Pintavirooj**, P. Putjarupong†, W. Withayachumnankul, M. Sangworasil, "SHAPE MATCHING USING SET OF CURVE AFFINE INVARIANT POINTS", International Conferences in Central Europe on Computer Graphics, Visualization and Computer Vision (WSCG2005) , Czech Republic, January 31st - February 4th , 2005.
- [35] B. Laksanapanai, W. Withayachumnankul , **C. Pintavirooj**, "Acceleration of Genetic Algorithm Using Parallel Processing with Application in Medical Image Registration", International Conferences in Central Europe on Computer Graphics, Visualization and Computer Vision (WSCG2005) , Czech Republic, January 31st - February 4th , 2005.
- [36] Kosin Kalaratt, B. Laksanapanai ,**Chuchart Pintavirooj** and Manas Sangworasil, "FAST CONE-BEAM TOMOGRAPHY ON CLUSTERING SYSTEM," The 2nd ECTI Annual Conference (ECTI-CON 2005), Pattaya, Thailand, May 2005
- [37] T. Angsuwatanakul, A. Ngamlamiad , **C. Pintavirooj** and M. Sangworasil, "Design and Construction of Low cost X-ray Array Detector applied for SART Fanbeam", The 2nd ECTI Annual Conference (ECTI-CON 2005), Pattaya, Thailand, May 2005
- [38] J. Theerapattanakul, **C. Pintavirooj**, and M.Sangworasil, "Feature Extraction for Chromosome Classification," The 2nd ECTI Annual Conference (ECTI-CON 2005), Pattaya, Thailand, May 2005
- [39] N. Pansaena, N. Banditwong, M. Sangworasil, **C. Pintavirooj**, S. Airphaiboon, "A Large Scale Medical Volume Rendering on Clustering System," Proc. ITC-CSCC 2005, Korea, July 2003.
- [40] N. Pansaena, N. Banditwong, M. Sangworasil, **C. Pintavirooj**, S. Airphaiboon, "A Large Scale Medical Volume Rendering on Clustering System," Proc. ITC-CSCC 2005, Korea, July 2003.
- [41] G. Tangtisanon K. , Jaruwongrunsee, K. Hamamoto and **C. Pintavirooj**, " Ultrasonic Diffraction Tomography With Multiple Frequency Synthesis", 27th Annual International Conference of the IEEE In Medicine and Biology Society (IEEE BMES 2005), Sep. 1-4, 2005, Shainghai, China.
- [42] **C. Pintavirooj**, K. Jaruwongrunsee, and K. Hamamoto, " Improved Technique for Deriving a Projection Data for Ultrasonic Diffraction Tomography", World Congress in Ultrasonics Merged with Ultrasonic International (WCU/UI'05), Beijing, China.

- [43] K. Kalaratt, W. Narkbuakaew, **C. Pintavirooj**, M. Sangworasil, "Rapid 3D Simultaneous Algebraic Reconstruction Technique (SART) on Clustering System", IEEE TENCON'05 , Nov 21-24, 2005, Melbourne Australia.
- [44] W.Narkbuakaew, **C.Pintavirooj**, W.Withayachumnankul, M.Sangworasil, "3D Modeling from Using Spiral Cone-Beam Trajectory", IEEE TENCON'05 , Nov 21-24, 2005, Melbourne Australia.
- [45] P. Nantivatana, W. Narkbuakaew, **C. Pintavirooj** and M. Sangworasil "Image Registration using Discrete Wavelet Transform", IEEE TENCON'05 , Nov 21-24, 2005, Melbourne Australia.
- [46] J. Theerapattanakul, J. Plodpai, **C. Pintavirooj** and P. Lertprasert, "Feature extraction and Classification for Automatic Chromosome Analysis", The 12th International Conference on Biomedical Engineering, 7-10 December 2005, Suntec Singapore International Convention and Exhibition Centre, Singapore.
- [47] S. Tantachun, **C. Pintavirooj** and M. Sangworasil, "Directional Filter Bank : An application for Fingerprint Enhancement", The 12th International Conference on Biomedical Engineering, 7-10 December 2005, Suntec Singapore International Convention and Exhibition Centre, Singapore.
- [48] S. Tantachun, **C. Pintavirooj** and M. Sangworasil, "Biometric using Hand Geometric Invariance", The 12th International Conference on Biomedical Engineering, 7-10 December 2005, Suntec Singapore International Convention and Exhibition Centre, Singapore.
- [49] S. Gimjumpa, W. Narkbuakaew, M. Sangworasil and **C. Pintavirooj**, "Acceleration of 3D SART using Wavelet Transform", The 12th International Conference on Biomedical Engineering, 7-10 December 2005, Suntec Singapore International Convention and Exhibition Centre, Singapore.
- [50] P. Yampri, **C.Pintavirooj**, S. Teartulakarn, and P. Tosranon, "Automated Classification of White Blood Cell Using Artificial Neural Network", The 12th International Conference on Biomedical Engineering, 7-10 December 2005, Suntec Singapore International Convention and Exhibition Centre, Singapore.
- [51] T. Onemanisone, K. Jaruwongrungssee, K. Hamamoto and **C. Pintavirooj**, "Using Lock-in Amplifier to Improve SNR of Ultrasonic Diffraction Tomographic Signal", The 12th International Conference on Biomedical Engineering, 7-10 December 2005, Suntec Singapore International Convention and Exhibition Centre, Singapore.

- [52] Mee-chai Lawhakan, Siridej Boonsang, **Chuchart Pintavirooj** and Manas Sangworasil ,“Analysis of Temperature and Flow Distribution in Infant Incubator Using Finite Element Method ”, The 12th International Conference on Biomedical Engineering, 7-10 December 2005, Suntec Singapore International Convention and Exhibition Centre, Singapore
- [53] T. Chanwimalueang, M. Sangworasil and **C. Pintavirooj** ,“Miniature Computed Tomography Application in 3D Modeling With Conebeam Geometry”, The 12th International Conference on Biomedical Engineering, 7-10 December 2005, Suntec Singapore International Convention and Exhibition Centre, Singapore
- [54] S.Tantachun, **C. Pintavirooj**, M. Sangworasil and Mee-chai Lawhakan, “BIOMETRICS WITH EIGEN-HAND”, 1st IEEE Conference on Industrial Electronics and Applications (IEEE ICIEA 2006), 24 - 26 May 2006, Singapore.
- [55] S. Tantachun, **C. Pintavirooj**, M. Sangworasil “DIRECTIONAL FILTER BANK:AN ENHANCEMENT FOR FINGERPRINT FEATURE DETECTION ”, 1st IEEE Conference on Industrial Electronics and Applications (IEEE ICIEA 2006), 24 - 26 May 2006, Singapore.
- [56] T. Chanwimalueang, Y.Pititheerapab, W. Narkbuekaew and C. Pintavirooj “CONE-BEAM X-RAY TOMOGRAPHY WIT ARBITRARY-ORIENTATION X-RAY TUBE”, 1st IEEE Conference on Industrial Electronics and Applications (IEEE ICIEA 2006), 24 - 26 May 2006, Singapore.
- [57] S. Gimjumpa,W. Narkbuekaew, M. Sangworasil, C. Pintavirooj, “3D MODELING FROM MULTIPLE PROJECTIONS WITH ARBITRARY-POSED CAMERA”, 1st IEEE Conference on Industrial Electronics and Applications (IEEE ICIEA 2006), 24 - 26 May 2006, Singapore.
- [58] P.Yampri, C.Pintavirooj, M. Sangworasil and S.Teartulakarn, “WHITE BLOOD CELL CLASSIFICATION BASED ON THE COMBINATION OF EIGEN CELL AND PARAMETRIC FEATURE DETECTION”, 1st IEEE Conference on Industrial Electronics and Applications (IEEE ICIEA 2006), 24 - 26 May 2006, Singapore.
- [59] Y. Pititheerapab, T. Chanwimalueang, M. Sangworasil and C. Pintavirooj, “MINIATURED COMPUTED TOMOGRAPHY SYSTEM AND CALIBRATION”, 1st IEEE Conference on Industrial Electronics and Applications (IEEE ICIEA 2006), 24 - 26 May 2006, Singapore.
- [60] Meechai Lohakan , Pisuit Janchaichanakun , S. Boonsang , C. Pintavirooj and M. Sangworasil, “A Computational Model of Magnetic Fluid Flow based on Maxwell’s Equation and Navier-Stokes Equations”, The 12th Biennial IEEE Conference on Electromagnetic Field Computation (CEFC 2006), April 30th - May 3rd 2006, Miami, FL USA

- [61] Sorapong Aootaphao, Manas Sangworasil and Chuchart Pintavirooj, " A 3D MOTION CAPTURE SYSTEM USING DIRECT LINEAR TRANSFORM AND QUAD-TREE SEARCHING SCHEME", The 3rd ECTI Annual Conference (ECTI-CON 2006), Ubon Ratchathani, Thailand, May 2006.
- [62] M. Lohakan , S. Boonsang , C. Pintavirooj and M. Sangworasil "3D TEMPERATURE MODEL OF AN INFANT INCUBATORBASED ON FINITE ELEMENT METHOD ", The 3rd ECTI Annual Conference (ECTI-CON 2006), Ubon Ratchathani, Thailand, May 2006.
- [63] Yuttana Pititherapad,, Boonyarit Laksanapanai, Polsart Lertprasert, Chuchart Pintavirooj, "X-RAY –DETECTOR WITH CMOS SENSOR CAMERA', World Congress on Medical Physics and Biomedical Engineering (WC2006), Seoul, Korea, August 2006.
- [64] T. Onemanisone, C. Pintavirooj, K. Jaruwongrungsee* and S. Daochai,"COMPARISON STUDY OF ULTRASONIC DIFFRACTION TOMOGRAPHY AND ULTRASONIC NON-DIFFRACTION TOMOGRAPHY", World Congress on Medical Physics and Biomedical Engineering (WC2006), Seoul, Korea, August 2006.
- [65] J. Theerapattanakul, C. Pintavirooj and M. Sangworasil, "Chromosome Classification Using Artificial Neural Network and Principal Component Analysis", World Congress on Medical Physics and Biomedical Engineering (WC2006), Seoul, Korea, August 2006.
- [66] T. Chanwimalueang, M. Sangworasil and C. Pintavirooj , "EXPERIMENTAL INVESTIGATION OF ARBITRARY-ORIENTATION CONE-BEAM X-RAY TOMOGRAPHY, World Congress on Medical Physics and Biomedical Engineering (WC2006), Seoul, Korea, August 2006.
- [67] T. Angsuwatanakul, T. Chanwimalueang, C. Pintavirooj, M. Sangworasil and P.Lertprasert, "Improved-Resolution X-ray Array Detector Applied for SART Fanbeam, International Symposium on Communications and Information Technology (ISCIT2006), Bangkok, October 18th –20th , 2006. (Accepted)
- [68] Sorapong Aootaphao, Saowapak Sotthivirat, Chuchart Pintavirooj, "A Computation Investigation for Metal Reduction in Conebeam x-ray Tomography", International Symposium on Communications and Information Technology (ISCIT2006), Bangkok, October 18th –20th , 2006. (Accepted)
- [69] P. Tosranon, T. Onemanisone^{*}, P. Greesuradej, C. Pintavirooj, K. Jaruwongrungsee, "Ultrasonic Reflection Mode Tomography Using Frequency-Shift Method", International Symposium on Communications and Information Technology (ISCIT2006), Bangkok, October 18th –20th , 2006. (Accepted)

- [70] Pititeeraphab, T. Chanmalueang, Thaval Rerksngaem, Kitipol Chitsakul and C. Pintavirooj "X-RAY –DETECTOR WITH CMOS SENSOR CAMERA APPLICATION FOR CALCIUM DENISTY MEASUREMENT", International Symposium on Communications and Information Technology (ISCIT2006), Bangkok, October 18th –20th, 2006. (Accepted)
- [71] Thanapong Chaichana, Manas Sangworasil, Chuchart Pintavirooj, Sorapong Aootaphao, "Acclerate a Dlt Motion Capture System With Quad-Tree Searching Scheme", International Symposium on Communications and Information Technology (ISCIT2006), Bangkok, October 18th –20th, 2006. (Accepted)

ผลงานวิจัยที่ตีพิมพ์

1. Tosranon, P., Bunluechokchai, S., Pintavirooj, C., Sangworasil, M. "Multiple Correspondences in Stereoscopy Using Frequency-Encoding Light Point" Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology, 2007. ECTI-CON 2007. 4th International Conference on, pp.979-982, 9-12 May 2007
2. Tosranon, P., Sanpanish, A., Bunluechokchai, S., Pintavirooj, C. "Robustness of novel surface invariance to geometric transformation," Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology, 2008. ECTI-CON 2008. 5th International Conference on, vol.1, pp.533-536, 14-17 May 2008
3. Tosranon, P., Sanpanich, A., Bunluechokchai, C., Pintavirooj, C., "Gaussian curvature-based geometric invariance," Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology, 2009. ECTI-CON 2009. 6th International Conference on, vol.02, pp.1124-1127, 6-9 May 2009