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## Biography

Edwin Bennink works as a researcher and research software engineer for the Medical Physics Group and the Image Sciences Institute (UMC Utrecht - Dept. of Radiology).

He received the MSc degree (cum laude) in biomedical engineering from the Eindhoven University of Technology in 2007.

In 2016, he received his PhD from the Utrecht University, with a research project on quantitative CT brain perfusion analysis. From 2007 to 2011 he worked as senior software developer for Scientific Volume Imaging BV.

Besides doing research in CT imaging in acute stroke and supporting various image-analysis related projects throughout the UMC Utrecht, Edwin is one of the lead developers of IMAGR, the image analytics infrastructure that brings deep-learning algorithms into the clinical workflow.

## Research output

### **Spatial correlation between in vivo imaging and immunohistochemical biomarkers: A methodological study**

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### **The relationship of fat and muscle measurements with emphysema and bronchial wall thickening in smokers**

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### **Standardizing the estimation of ischemic regions can harmonize CT perfusion stroke imaging**

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### **A monocenter, patient-blinded, randomized, parallel-group, non-inferiority study to compare cochlear implant receiver/stimulator device fixation techniques (COMFIT) with and without drilling in adults eligible for primary cochlear implantation**

Markodimitraki, L. M., Harkel, T. C. T., Bennink, E., Stegeman, I. & Thomeer, H. G. X. M., 24 Sept 2023, In: *Trials*. 24, 1, p. 1-10 605.

### **Spatial CT perfusion data helpful in automatically locating vessel occlusions for acute ischemic stroke patients**

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### **Neural network-derived perfusion maps: A model-free approach to computed tomography perfusion in patients with acute ischemic stroke**

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### **Detection of Cardioembolic Sources With Nongated Cardiac Computed Tomography Angiography in Acute Stroke: Results From the ENCLOSE Study**

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### **Cerebrospinal fluid volume improves prediction of malignant edema after endovascular treatment of stroke**

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**Probability maps classify ischemic stroke regions more accurately than CT perfusion summary maps**

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**Motion correction in retinal optical coherence tomography imaging using deep learning registration**

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**Bringing AI to the clinic: blueprint for a vendor-neutral AI deployment infrastructure**

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**Non-contrast dual-energy CT virtual ischemia maps accurately estimate ischemic core size in large-vessel occlusive stroke**

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**Variation in arterial input function in a large multicenter computed tomography perfusion study**

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**Image Quality of Virtual Monochromatic Reconstructions of Noncontrast CT on a Dual-Source CT Scanner in Adult Patients**

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**Comparing methods of detecting and segmenting unruptured intracranial aneurysms on TOF-MRAS: The ADAM challenge**

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**Virtual monochromatic dual-energy CT reconstructions improve detection of cerebral infarct in patients with suspicion of stroke**

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Kauw, F., van Ommen, F., Bennink, E., Cramer, M. J., Kappelle, L. J., Takx, R. A., Velthuis, B. K., Viergever, M. A., Wouter van Es, H., Schonewille, W. J., Coutinho, J. M., Majoie, C. B., Marquering, H. A., de Jong, H. W. & Dankbaar, J. W., Dec 2020, In: *European Stroke Journal*. 5, 4, p. 432-440 9 p.

**From perviousness to permeability, modelling and measuring intra-thrombus flow in acute ischemic stroke**

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**A Reflectivity Measure to Quantify Bruch's Membrane Calcification in Patients with Pseudoxanthoma Elasticum Using Optical Coherence Tomography**

Risseuw, S., Bennink, E., Poirot, M., de Jong, P., Spiering, W., Imhof, S., van Leeuwen, R. & Ossewaarde-van Norel, J., Jul 2020, In: *Translational vision science & technology*. 9, 8, p. 34 12 p.

**Prediction of Malignant Edema Formation After Endovascular Treatment for Middle Cerebral Artery Infarction: The Added Value of Intracranial Cerebrospinal Fluid Volume**

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**Quantification of Bruch's Membrane calcification in Pseudoxanthoma Elasticum: a proof-of-concept study using SD-OCT**

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**Stroke progression and clinical outcome in ischemic stroke patients with a history of migraine**

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**Effect of prolonged acquisition intervals for CT-perfusion analysis methods in patients with ischemic stroke**

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**Intracranial Cerebrospinal Fluid Volume as a Predictor of Malignant Middle Cerebral Artery Infarction**

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**Comparison of Place-versus-Pitch Mismatch between a Perimodiolar and Lateral Wall Cochlear Implant Electrode Array in Patients with Single-Sided Deafness and a Cochlear Implant**

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**Dose of CT protocols acquired in clinical routine using a dual-layer detector CT scanner: A preliminary report**

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**Wake-up stroke versus stroke with known onset time: clinical and multimodality CT imaging characteristics**

Dankbaar, J. W., Bienfait, H. P., Van Den Berg, C., Bennink, E., Horsch, A. D., Van Seeters, T., Van Der Schaaf, I. C., Kappelle, L. J. & Velthuis, B. K., 1 Aug 2018, In: *Cerebrovascular Diseases*. 45, 5-6, p. 236-244 9 p.

**Image quality of conventional images of dual-layer SPECTRAL CT: a phantom study**

van Ommen, F., Bennink, E., Vlassenbroek, A., Dankbaar, J. W., Schilham, A. M. R., Viergever, M. A. & de Jong, H. W. A. M., Jul 2018, In: *Medical Physics*. 45, 7, p. 3031-3042 12 p.

**Computed Tomography Perfusion Derived Blood-Brain Barrier Permeability Does Not Yet Improve Prediction of Hemorrhagic Transformation**

Horsch, A. D., Bennink, E., van Seeters, T., Kappelle, L. J., van der Graaf, Y., Mali, W. P. T. M., de Jong, H. W. A. M., Velthuis, B. K. & Dankbaar, J. W., 2018, In: *Cerebrovascular Diseases*. 45, 1-2, p. 26-32 7 p.

**Automatic Localization of Cochlear Implant Electrode Contacts in CT**

Bennink, E., Peters, J. P. M., Wendrich, A. W., Vonken, E. J., van Zanten, G. A. & Viergever, M. A., 2017, In: *Ear and Hearing*. 38, 6, p. e376-e384

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**Fast nonlinear regression method for CT brain perfusion analysis**

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### **Quantitative CT Perfusion Analysis in Ischemic Stroke**

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### **Imaging Findings Associated with Space-Occupying Edema in Patients with Large Middle Cerebral Artery Infarcts**

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### **Influence of Thin Slice Reconstruction on CT Brain Perfusion Analysis**

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### **CT perfusion analysis by nonlinear regression for predicting hemorrhagic transformation in ischemic stroke**

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### **Comparison of DCE-CT models for quantitative evaluation of K-trans in larynx tumors**

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### **Different CT perfusion algorithms in the detection of delayed cerebral ischemia after aneurysmal subarachnoid hemorrhage**

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### **A non-linear regression method for CT brain perfusion analysis**

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### **Automated prediction of tissue outcome after acute ischemic stroke in Computed Tomography perfusion images**

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### **High performance analysis of compressed dynamic CT perfusion image data for acute care of ischemic stroke**

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### **Predicting stroke outcome using DCE-CT measured blood velocity**

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### **Comparison of partial volume effects in arterial and venous contrast curves in CT brain perfusion imaging**

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### **A fast nonlinear regression method for estimating permeability in CT perfusion imaging**

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### **CT brain perfusion protocol to eliminate the need for selecting a venous output function**

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