

Dimitris Rizopoulos

Birth date: December 9th, 1979

Nationality: Greek

Contact info:

Department of Biostatistics

Erasmus University Medical Center

PO Box 2040, 3000 CA Rotterdam

the Netherlands

d.rizopoulos@erasmusmc.nl

<https://www.drizopoulos.com/>

ACADEMIC POSITIONS

◇ **Dept. of Biostatistics, Erasmus University Medical Center**

- Professor, June 2018 – present
- Associate Professor, March 2014 – May 2018
- Assistant Professor, September 2008 – February 2014

EDUCATION

◇ **Leuven Biostatistics and statistical Bioinformatics Centre, Katholieke Universiteit Leuven**

- PhD in Mathematics (direction Biostatistics), October 2004 – May 2008
Thesis title: *Joint Modelling of Longitudinal and Survival Data* (advisor: Prof. Geert Verbeke / co-advisors: Prof. E. Lesaffre & Prof. I. Gijbels)
- pre-Doctoral studies, October 2003 – September 2004

◇ **Dept. of Statistics, Athens University of Economics and Business**

- Master in Statistics, October 2002 – December 2003
- Bachelor in Statistics, October 1998 – September 2002

RESEARCH INTERESTS

- ◇ Joint modelling of longitudinal and time-to-event data
- ◇ Longitudinal data analysis
- ◇ Survival analysis
- ◇ Statistical analysis with missing data, primarily in longitudinal studies
- ◇ Psychometrics, latent variable modelling & item response theory
- ◇ Statistical computing in R

GRANTS ◇ Grants

AWARDS

SCHOLARSHIPS

- CISNET PROSTATE, National Institutes of Health, USA (2020–2025, €K750)
- ERASMUS MC GRANT, Erasmus Medical Center Rotterdam (2020–2024, €K150) – jointly with Dr. I. Kardys
- ERASMUS MC GRANT, Erasmus Medical Center Rotterdam (2015–2019, €K150) – jointly with Prof. E. Steyerberg
- VIDI, NWO: Netherlands Organization for Scientific Research PI (2014–2019, €K800)
- Aristeia II grant, Athens University of Economics and Business (2014–2015, €K100) – jointly with Prof. V. Vasdekis (PI) and Prof. I. Moustaki
- Erasmus University Rotterdam Fellowship PI (2011–2014, €K135)
- Erasmus Trustfonds travel grant (2011, €K0.75)
- PEVE3 grant, Athens University of Economics and Business, (2011, €K12) – jointly with Prof. V. Vasdekis (PI) and Prof. I. Moustaki
- PEVE2 grant, Athens University of Economics and Business (2010, €K12) – jointly with Prof. V. Vasdekis (PI)
- U.S. Army Medical Research grant (2006, €K3)

◇ Awards

- ISCB Student Conference award (2007)
- IWSM Student Paper award (2007)
- IWSM Student Paper award (2007)
- ISCB Student Conference award (2005)
- Academic Excellence award, G. Halkiopoulos Foundation, Athens University of Economics and Business (2001)

◇ Scholarships

- Katholieke Universiteit Leuven for pre-doctoral studies (2003–2004, €12K)
- PricewaterHouseCoopers for Master studies (2002–2003, €4.5K)

PUBLICATIONS ◇ Books

- Rizopoulos, D. (2012). *Joint Models for Longitudinal and Time-to-Event Data, with Applications in R*. Boca Raton: Chapman and Hall/CRC. [[Book Website](#); [Publisher Website](#)]

◇ International Journals

1. Rizopoulos, D. and Taylor, J.M.G. (2024). Optimizing dynamic predictions from joint models using super learning. *Statistics in Medicine*, to appear.

2. de Bakker, M., Loncq de Jong, M., Petersen, T., de Lange, I., Akkerhuis, M., Umans, V.A., Rizopoulos, D., Boersma, E., Brugts, J.J. and Kardys, I. (2024). Sex-specific cardiovascular protein levels and their link with clinical outcome in heart failure. *ESC Heart Failure* **11**, 594–600.
3. Dorr, M.C., Andrinopoulou, E.R., Sewnaik, A., Berzenji, D., van Hof, K.S., Dronkers, E.A.C., Bernard, S.E., Hoesseini, A., Rizopoulos, D., Baatenburg de Jong, R.J., Offerman, M.P.J. (2024). Individualized Dynamic Prediction Model for Patient-Reported Voice Quality in Early-Stage Glottic Cancer. *Otolaryngology Head Neck Surgery* **170**, 169–178.
4. Garcia-Hernandez, A., Perez, T., del Carmen Pardo, M. and Rizopoulos, D. (2023). An illness-death multi-state model to implement delta adjustment and reference-based imputation with time-to-event endpoints. *Pharmaceutical Statistics*, to appear.
5. Qi, H., Rizopoulos, D., and van Rosmalen, J. (2023). Sample size calculation for clinical trials analyzed with the meta-analytic-predictive approach. *Research Synthesis Methods*, to appear.
6. de Bakker, M., Petersen, T.B., Rueten-Budde, A.J., Akkerhuis, K.M., Umans, V.A., Brugts, J.J., Germans, T., Reinders, M.J.T., Katsikis, P.D., van der Spek, P.J., Ostroff, R., She, R., Lanfear, D., Asselbergs, F.W., Boersma, E., Rizopoulos, D. and Kardys, I. (2023). Machine learning-based biomarker profile derived from 4210 serially measured proteins predicts clinical outcome of patients with heart failure. *European Heart Journal Digital Health* **4**, 444–454.
7. de Bakker, M., Petersen, T.B., Akkerhuis, K.M., Harakalova, M., Umans, V.A., Germans, T., Caliskan, K., Katsikis, P.D., van der Spek, P.J., Suthahar, N., de Boer, R.A., Rizopoulos, D., Asselbergs, F.W., Boersma, E. and Kardys, I. (2023). Sex-based differences in cardiovascular proteomic profiles and their associations with adverse outcomes in patients with chronic heart failure. *Biology of Sex Differences* **14**, 29.
8. Dijk, S.W., Kroencke, T., Wollny, C., Barkhausen, J., Jansen, O., Halfmann, M.C., Rizopoulos, D. and Hunink, M.G.M. (2023). Medical Imaging Decision And Support (MIDAS): Study protocol for a multi-centre cluster randomized trial evaluating the ESR iGuide. *Contemp Clinical Trials* **135**, 107384.
9. Wang, K., Ahmadizar, F., Geurts, S., Arshi, B., Kors, J.A., Rizopoulos, D., Sijbrands, E.J.G., Ikram, M.A. and Kavousi, M. (2023). Heart rate variability and incident type 2 diabetes in general population. *The Journal of Clinical Endocrinology & Metabolism*, to appear.
10. Lika, A., Andrinopoulou, E.R., van der Beek, N.A.M.E., Rizopoulos, D., van der Ploeg, A.T. and Kruijshaar, M.E. Association between changes in pulmonary function and in patient reported outcomes during enzyme therapy of adult patients with late-onset Pompe disease. *Journal of Inherited Metabolic Disease*, to appear.
11. Dorr, M.C., Sewnaik, A., Andrinopoulou, E., Berzenji, D., Dronkers, E.A.C., Bernard, S.E., Hoesseini, A., Tans, L., Rizopoulos, D., Baaten-

- burg de Jong, R.J. and Offerman, M.P.J. (2023). Longitudinal patient-reported voice quality in early-stage glottic cancer. *Otolaryngology-Head and Neck Surgery* **168**, 1463–1471.
12. Tomer, A., Nieboer, D., Roobol, M.J., Steyerberg, E.W., Rizopoulos, D. (2022). Shared decision making of burdensome surveillance tests using personalized schedules and their burden and benefit. *Statistics in Medicine* **41**, 2115–2131.
13. van Oudenhoven, F.M., Swinkels, S.H.N., Hartmann, T. and Rizopoulos, D. (2022). Modeling the underlying biological processes in Alzheimer’s disease using a multivariate competing risk joint model. *Statistics in Medicine* **41**, 3421–3433.
14. Qi, H., Rizopoulos, D., Lesaffre, E. and van Rosmalen, J. (2022). Incorporating historical controls in clinical trials with longitudinal outcomes using the modified power prior. *Pharmaceutical Statistics* **21**, 818–834.
15. Mchunu, N.N., Mwambi, H.G., Rizopoulos, D., Reddy, T. and Yende-Zuma, N. (2022). Using joint models to study the association between CD4 count and the risk of death in TB/HIV data. *BMC Medical Research Methodology* **22**, 295.
16. van de Beeten, S.D.C., Ramdas, W.D., Yang, S., Loudon, S.E., den Ottelander, B.K., Rizopoulos, D., van Veelen, M.L.C. and Mathijssen, I.M.J. (2022). The use of OCT to detect signs of intracranial hypertension in patients with sagittal suture synostosis: Reference values and correlations. *Child’s Nervous System* **38**, 1937–1947.
17. van den Dorpel, J.J.A., Dremmen, M.H.G., van der Beek, N.A.M.E., Rizopoulos, D., van Doorn, P.A., van der Ploeg, A.T., Muetzel, R.L. and van den Hout, J.M.P. (2022). Diffusion tensor imaging of the brain in Pompe disease. *Journal of Neurology*, to appear.
18. Gerritsen, J.K.W., Rizopoulos, D., Schouten, J.W., Haitsma, I.K., Er-alp, I., Klimek, M., Dirven, C.M.F. and Vincent, A.J.P.E. (2022). Impact of dedicated neuro-anesthesia management on clinical outcomes in glioblastoma patients: A single-institution cohort study. *PLoS One* **17**, e0278864.
19. Gerritsen, S.E., van Bodegom, L.S., Overbeek, M.M., Maras, A., Verhulst, F.C., Wolke, D., Rizopoulos, D., de Girolamo, G., Frani, T., Madan, J., McNicholas, F., Paul, M., Purper-Ouakil, D., Santosh, P.J., Schulze, U.M.E., Singh, S.P., Street, C., Tremmery, S., Tuomainen, H. and Dieleman, G.C. (2022). Leaving child and adolescent mental health services in the MILESTONE cohort: a longitudinal cohort study on young people’s mental health indicators, care pathways, and outcomes in Europe. *The Lancet Psychiatry* **9**, 944–956.
20. Mchunu, N.N., Mwambi, H.G., Rizopoulos, D., Reddy, T. and Yende-Zuma, N. (2022). Using joint models to study the association between CD4 count and the risk of death in TB/HIV data. *BMC Medical Research Methodology* **22**, art. no. 295.

21. Klapphake, S., Fakhry, F., Rouwet, E.V., Van Der Laan, L., Wever, J.J., Teijink, J.A., Hoffmann, W.H., Van Petersen, A., Van Brussel, J.P., Stultiens, G.N., Derom, A., Den Hoed, T.T., Ho G.H., Van Dijk, L.C., Verhofstad, N., Orsini, M., Hulst, I., Van Sambeek, M.R., Rizopoulos, D., Van Rijn, M.J.J.E., Verhagen, H.J.M. and Hunink M.G.M. (2022). Long-term follow-up of a randomized clinical trial comparing endovascular revascularization plus supervised exercise with supervised exercise only for intermittent claudication. *Annals of Surgery* **276**, E1035–E1043.
22. Mulder, S.T., Omidvari, A.H., Rueten-Budde, A.J., Huang, P.H., Kim, K.H., Bais, B., Rousian, M., Hai, R., Akgun, C., van Lenep, J.R., Willemsen, S., Rijnbeek, P.R., Tax, D.M., Reinders, M., Boersma, E., Rizopoulos, D., Visch, V. and Steegers-Theunissen, R. (2022). Dynamic Digital Twin: Diagnosis, Treatment, Prediction, and Prevention of Disease During the Life Course. *Journal of Medical Internet Research* **24**, e35675.
23. van der Burgh, A.C., Stricker, B.H., Rizopoulos, D., Ikram, M.A., Hoorn, E.J. and Chaker, L. (2022). Kidney function and the risk of sudden cardiac death in the general population. *Clinical Kidney Journal* **15**, 1524–1533.
24. Dijk, S.W., Steijlen, O.F.M., Kranenburg, L.W., Rouwet, E.V., Luik, A.I., Bierbooms, A.E., Kouwenhoven-Pasmooij, T.A., Rizopoulos, D., Swanson, S.A., Hoogendijk, W.J.G. and Hunink, M.G.M. (2022). Decrease STress through RESilience training for Students (DESTRESS) Study: Protocol for a randomized controlled trial nested in a longitudinal observational cohort study. *Contemporary Clinical Trials* **122**, 106928.
25. Tong-Minh, K., van der Does, Y., van Rosmalen, J., Ramakers, C., Gommers, D., van Gorp, E., Rizopoulos, D. and Endeman H. (2022). Joint modeling of repeated measurements of different biomarkers predicts mortality in COVID-19 patients in the intensive care unit. *Biomarker Insights* **17**, 11772719221112370.
26. de Lange, I., Petersen, T.B., de Bakker, M., Akkerhuis, K.M., Brugts, J.J., Caliskan, K., Manintveld, O.C., Constantinescu, A.A., Germans, T., van Ramshorst, J., Umans, V.A.W.M., Boersma, E., Rizopoulos, D. and Kardys I. *International Journal of Cardiology* **364**, 77–84.
27. Roumans, C.A.M., Zellenrath, P.A., Steyerberg, E.W., Lansdorp-Vogelaar, I., Doukas, M., Biermann, K., Alderliesten, J., van Ingen, G., Nagengast, W.B., Karrenbeld, A., Ter Borg, F., Hage, M., Ter Borg, P.C.J., den Bakker, M.A., Alkhalaf, A., Moll, F.C.P., Brouwer-Hol, L., van Baarlen, J., Quispel, R., van Tilburg, A., Burger, J.P.W., van Tilburg, A.J.P., Ooms, A.H.A.G., Tang, T.J., Romberg-Camps, M.J.L., Goudkade, D., Bruno, M.J., Rizopoulos, D. and Spaander, M.C.W. *Cancers* **14**, 3240.
28. Arshi, B., Geurts, S., Tilly, M.J., van den Berg, M., Kors, J.A., Rizopoulos, D., Ikram, M.A. and Kavousi, M. (2022). Heart rate variability is associated with left ventricular systolic, diastolic function and incident heart failure in the general population. *BMC Medicine* **20**, 91.

29. Lu, Z., Geurts, S., Arshi, B., Tilly, M.J., Aribas, E., Roeters van Lennep, J., de Groot, N., Rizopoulos, D., Ikram, M.A. and Kavousi M. (2022). Longitudinal anthropometric measures and risk of new-onset atrial fibrillation among community-dwelling men and women. *Mayo Clinic Proceedings* **97**, 1501–1511.
30. Klimczak-Tomaniak, D., de Bakker, M., Bouwens, E., Akkerhuis, K.M., Baart, S., Rizopoulos, D., Mouthaan, H., van Ramshorst, J., Germans, T., Constantinescu, A., Manintveld, O., Umans, V., Boersma, E. and Kardys, I. (2022). Dynamic personalized risk prediction in chronic heart failure patients: a longitudinal, clinical investigation of 92 biomarkers (Bio-SHiFT study). *Scientific Reports* **12**, 2795.
31. Dommershuijsen, L.J., Ruiter, R., Erler, N.S., Rizopoulos, D., Ikram, M.A. and Ikram, M.K. (2022). Peripheral immune cell numbers and C-Reactive protein in Parkinson’s disease: Results from a population-based study. *Journal of Parkinson’s Disease* **12**, 667–678.
32. Minderhoud, S.C.S., Fletcher, A.J., MacNaught, G., Cadet, S., Korteland, S.A., Kardys, I., Rizopoulos, D., Slomka, P., Newby, D.E., Roos-Hesselink, J.W., Walker, N.L., Semple, S., Hirsch, A., Dweck, M.R. and Wentzel, J.J. (2022). Vascular biomechanics and molecular disease activity in the thoracic aorta: a novel imaging method. *European Heart Journal - Cardiovascular Imaging* **23**, 1698–1707.
33. Ditters, I.A.M., Huidekoper, H.H., Kruijshaar, M.E., Rizopoulos, D., Hahn, A., Mongini, T.E., Labarthe, F., Tardieu, M., Chabrol, B., Brassier, A., Parini, R., Parenti, G., van der Beek, N.A.M.E., van der Ploeg, A.T. and van den Hout, J.M.P. (2022). Effect of alglucosidase alfa dosage on survival and walking ability in patients with classic infantile Pompe disease: a multicentre observational cohort study from the European Pompe Consortium. *Lancet Child Adolescent Health* **6**, 28–37.
34. Vlug, L.E., Neelis, E.G., Wells, J.C.K., Fewtrell, M.S., Kastelijn, W.L.M., Olieman, J.F., Vermeulen, M.J., Roelants, J.A., Rizopoulos, D., Wijnen, R.M.H., Rings, E.H.H.M., de Koning, B.A.E. and Hulst, J.M. (2022). Anthropometrics and fat mass, but not fat-free mass, are compromised in infants requiring parenteral nutrition after neonatal intestinal surgery. *American Journal of Clinical Nutrition* **115**, 503–513.
35. den Ottelander, B.K., van de Beeten, S.D.C., Yang, S., Rizopoulos D, van Veelen, M.C., Mathijssen, I.M.J. and Loudon, S.E. (2022). Quantified retinal morphology and its association with papilledema and visual acuity in syndromic and complex craniosynostosis: an optical coherence tomography study. *American Journal of Ophthalmology* **235**, 38–45.
36. van Gaalen, M.A.C., van Pieterse, M., van den Brink, G., de Ridder, L., Rizopoulos, D., van der Woude, C.J. and Escher, J.C. (2022). Rotterdam Transition Test: A valid tool for monitoring disease knowledge in adolescents with inflammatory bowel disease. *Journal of Pediatric Gastroenterology and Nutrition* **74**, 60–67.
37. Jongsma, M.M.E., Aardoom, M.A., Cozijnsen, M.A., van Pieterse, M., de Meij, T., Groeneweg, M., Norbruis, O.F., Wolters, V.M., van Wering,

- H.M., Hojsak, I., Kolho, K.L., Hummel, T., Stapelbroek, J., van der Feen, C., van Rheenen, P.F., van Wijk, M.P., Teklenburg-Roord, S.T.A., Schreurs, M.W.J., Rizopoulos, D., Doukas, M., Escher, J.C., Samsom, J.N. and de Ridder, L. (2022). First-line treatment with infliximab versus conventional treatment in children with newly diagnosed moderate-to-severe Crohn’s disease: an open-label multicentre randomised controlled trial. *Gut* **71**, 34–42.
38. Klaphake, S., Fakhry, F., Rouwet, E.V., van der Laan, L., Wever, J.J., Teijink, J.A., Hoffmann, W.H., van Petersen, A., van Brussel, J.P., Stultiens, G.N., Derom, A., den Hoed, P.T., Ho, G.H., van Dijk, L.C., Verhofstad, N., Orsini, M., Hulst, I., van Sambeek, M.R., Rizopoulos, D., van Rijn, M.J.E., Verhagen, H.J.M. and Hunink, M.G.M. (2022). Long-term follow-up of a randomized clinical trial comparing endovascular revascularization plus supervised exercise with supervised exercise only for intermittent claudication. *Annals of Surgery* **276**, e1035–e1043.
39. van Oudenhoven, F.M., Swinkels, S.H.N., Soininen, H., Kivipelto, M., Hartmann, T. and Rizopoulos, D. (2021). A competing risk joint model for dealing with different types of missing data in an intervention trial in prodromal Alzheimer’s disease. *Alzheimer’s Research & Therapy* **13**, 63.
40. Piulachs, X., Andrinopoulou, E.R., Guillé, M. and Rizopoulos, D. (2021). A Bayesian joint model for zero-inflated integers and left-truncated event times with a time-varying association: Applications to senior health care. *Statistics in Medicine* **40**, 147–166.
41. Papageorgiou, G. and Rizopoulos, D. (2021). An alternative characterization of Missing at Random in Shared Parameter Models for incomplete longitudinal data and its utilization for sensitivity analysis. *Statistical Modelling* **21**, 95–114.
42. Mauff, K., Erler, N.S., Kardys, I. and Rizopoulos, D. (2021). Pairwise estimation of multivariate longitudinal outcomes in a Bayesian setting with extensions to the joint model. *Statistical Modelling* **21**, 115–136.
43. Alam, K., Maity, A., Sinha, S.K., Rizopoulos, D. and Sattar, A. (2020). Joint modeling of longitudinal continuous, longitudinal ordinal, and time-to-event outcomes. *Lifetime Data Analysis* **27**, 64–90.
44. Erler, N.S., Rizopoulos, D., and Lesaffre, E.M.E.H. (2021). JointAI: Joint analysis and imputation of incomplete data in R. *Journal of Statistical Software* **100**, 1–56.
45. Tomer, A., Nieboer, D., Roobol, M.J., Bjartell, A., Steyerberg, E.W., Rizopoulos, D. (2020). Personalised biopsy schedules based on risk of Gleason upgrading for patients with low-risk prostate cancer on active surveillance. *BJU International* **127**, 96–107.
46. Baart, S.J., van der Palen, R.L.F., Putter, H., Tsonaka, R., Blom, N.A., Rizopoulos, D. and van Geloven, N. (2021). Joint modeling of longitudinal markers and time-to-event Outcomes: An application and tutorial in patients after surgical repair of transposition of the great arteries. *Circulation: Cardiovascular Quality and Outcomes* **14**: e007593.

47. Andrinopoulou, E.R., Harhay, M.O., Ratcliffe, S.J. and Rizopoulos, D. (2021). Reflection on modern methods: Dynamic prediction using joint models of longitudinal and time-to-event data. *International Journal Epidemiology* **50**, 1731–1743.
48. van der Burgh, A.C., Rizopoulos, D., Ikram, M.A., Hoorn, E.J. and Chaker, L. (2021). Determinants of the evolution of kidney function With age. *Kidney International Reports* **6**, 3054–3063.
49. Dogterom, E.J., Wagenmakers, M.A.E.M., Wilke, M., Demirdas, S., Muschol, N.M., Pohl, S., Meijden, J.C.V., Rizopoulos, D., Ploeg, A.T.V. and Oussoren, E. (2021). Mucopolidosis type II and type III: a systematic review of 843 published cases. *Genetics in Medicine* **23**, 2047–2056.
50. Selles, R., Andrinopoulou, E.R., Nijland, R., van der Vliet, R., Slaman, J., van Wegen, E., Rizopoulos, D., Ribbers, G., Meskers, C. and Kwakkel, G. (2021). Computerised patient-specific prediction of the recovery profile of upper limb capacity within stroke services: the next step. *Journal of Neurology, Neurosurgery and Psychiatry* **92**, 574–581.
51. Fakhry, F., Rouwet, E.V., Spillenaar-Bilgen, R., van der Laan, L., Wever, J.J., Teijink, J.A.W., Hoffmann, W.H., van Petersen, A., van Brussel, J.P., Stultiens, G.N.M., Derom, A., den Hoed, P.T., Ho, G.H., van Dijk, L.C., Verhofstad, N., Orsini, M., Hulst, I., van Sambeek, M.R.H.M., Rizopoulos, D., Moelker, A. and Hunink, M.G.M. (2021). Endovascular revascularization plus supervised exercise versus supervised exercise only for intermittent claudication: a cost-effectiveness analysis. *Circulation: Cardiovascular Interventions* **14**, e010703.
52. Molema, F., Haijes, H.A., Janssen, M.C., Bosch, A.M., van Spronsen, F.J., Mulder, M.F., Verhoeven-Duif, N.M., Jans, J.J.M., van der Ploeg, A.T., Wagenmakers, M.A., Rubio-Gozalbo, M.E., Brouwers, M.C.G.J., de Vries, M.C., Fuchs, S., Langendonk, J.G., Rizopoulos, D., van Hasselt, P.M. and Williams, M. High protein prescription in methylmalonic and propionic acidemia patients and its negative association with long-term outcome. *Clinical Nutrition* **40**, 3622–3630.
53. Vollebregt, A.A.M., Ebbink, B.J., Rizopoulos, D., Lequin, M.H., Aarsen, F.K., Shapiro, E.G., van der Ploeg, A.T. and van den Hout, J.M.P. (2021). Can serial cerebral MRIs predict the neuronopathic phenotype of MPS II? *Journal of Inherited Metabolic Disease* **44**, 751–762.
54. Beunders, V.A.A., Roelants, J.A., Hulst, J.M., Rizopoulos, D., Hokken-Koelega, A.C.S., Neelis, E.G., de Fluiter, K.S., Jaddoe, V.W.V., Reiss, I.K.M., Joosten, K.F.M. and Vermeulen, M.J. (2021). Early weight gain trajectories and body composition in infancy in infants born very preterm. *Pediatric Obesity* **16**, e12752.
55. Eveleens, R.D., Hulst, J.M., de Koning, B.A.E., van Brakel, J., Rizopoulos, D., Garcia Guerra, G., Vanhorebeek, I., Van den Berghe, G., Joosten, K.F.M. and Verbruggen, S.C.A.T. (2021). Achieving enteral nutrition during the acute phase in critically ill children: Associations with patient characteristics and clinical outcome. *Clinical Nutrition* **40**, 1911–1919.

56. Schuurman, A.S., Tomer, A., Akkerhuis, K.M., Brugts, J.J., Constantinescu, A.A., Ramshorst, J.V., Umans, V.A., Boersma, E., Rizopoulos, D. and Kardys, I. (2021). Personalized screening intervals for measurement of N-terminal pro-B-type natriuretic peptide improve efficiency of prognostication in patients with chronic heart failure. *European Journal of Preventive Cardiology* **34**, 1421–1427.
57. van Oudenhoven, F.M., Swinkels, S.H.N., Ibrahim, J.G. and Rizopoulos, D. (2020). A marginal estimate for the overall treatment effect on a survival outcome within the joint modeling framework. *Statistics in Medicine* **39**, 4120–4132.
58. Andrinopoulou, E.R., Nasserinejad, K., Szczesniak, R., and Rizopoulos, D. (2020). Integrating latent classes in the Bayesian shared parameter joint model of longitudinal and survival outcomes. *Statistical Methods in Medical Research* **29**, 3294–3307.
59. Rose, S. and Rizopoulos, D. (2020). Machine learning for causal inference in Biostatistics. *Biostatistics* **21**, 336–338.
60. Mauff, K., Steyerberg, E.W., Kardys, I., Boersma, H. and Rizopoulos, D. (2020). Joint models with multiple longitudinal outcomes and a time-to-event outcome: A corrected two-stage approach. *Statistics and Computing* **30**, 999–1014.
61. Garcia-Hernandez, A., Perez, T., Pardo, M.D.C. and Rizopoulos, D. (2020). MMRM vs joint modeling of longitudinal responses and time to study drug discontinuation in clinical trials using a “de jure” estimand. *Pharmaceutical Statistics* **19**, 909–927.
62. Yuan, M., Andrinopoulou, E.R., Kruijshaar, M.E., Lika, A., Harlaar, L., van der Ploeg, A.T., Rizopoulos, D., van der Beek, N.A.M.E. (2020). Positive association between physical outcomes and patient-reported outcomes in late-onset Pompe disease: a cross sectional study. *Orphanet Journal of Rare Diseases* **15**, 232.
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◇ Book Chapters

1. Rizopoulos, D. (2014). Joint Modeling of Longitudinal and Time-to-Event Data. In: *Handbook of Missing Data* by Fitzmaurice, G., Ken-

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2. Rizopoulos, D., Molenberghs, G. and Verbeke, G. (2014). Model Diagnostics and Incomplete Data. In: *Handbook of Missing Data* by Fitzmaurice, G., Kenward, M., Molenberghs, G., Tsiatis, A. and Verbeke, G. Boca Raton: Chapman and Hall/CRC.
3. Rizopoulos, D. (2013). Joint Modeling of Longitudinal and Time-to-Event Data: Challenges and Future Directions. In: *Advances in Theoretical and Applied Statistics* by Torelli, N. and Pesarin, F.
4. Verbeke, G., Molenberghs, G. and Rizopoulos, D. (2010). Random Effects Models for Longitudinal Data. In: *Longitudinal Research with Latent Variables* by van Montfort, K., Oud, J. and Satorra, A. Heidelberg: Springer-Verlag.

STATISTICAL SOFTWARE ◇ packages developed for the R programming language – publicly available via CRAN

- **JMbayes2** package: Fits extended joint models for continuous longitudinal responses and time-to-event data under the Bayesian approach. More info available at: <http://cran.r-project.org/package=JMbayes2>.
- **GLMMadaptive** package: Fits generalized linear mixed models for a single grouping factor under maximum likelihood approximating the integrals over the random effects with an adaptive Gaussian quadrature rule. More info available at: <http://cran.r-project.org/package=GLMMadaptive>.
- **JMbayes** package: Fits joint models for continuous longitudinal responses and time-to-event data under the Bayesian approach. More info available at: <http://cran.r-project.org/package=JMbayes>.
- **JM** package: Fits joint models for continuous longitudinal responses and time-to-event data. More info available at: <http://cran.r-project.org/package=JM>.
- **cvGEE** package: Calculates predictions from generalized estimating equations and internally cross-validates them using the logarithmic, quadratic and spherical proper scoring rules. More info available at: <http://cran.r-project.org/package=cvGEE>.
- **ltm** package: Latent trait models for Item Response Theory analyses. More info available at: <http://cran.r-project.org/package=ltm>.
- **bootStepAIC** package: Bootstraps a stepwise algorithm that uses the AIC for model selection. More info available at: <http://cran.r-project.org/package=bootStepAIC>.

SEMINARS & ◇ Invited

CONFERENCE
PRESENTATIONS

1. 2023 August: Joint Statistical Meetings, Toronto, Canada, ‘Using Joint Models for Longitudinal and Time-to-Event Data to Investigate the Causal Effect of Salvage Therapy after Prostatectomy’.
2. 2022 May: Statistical Sciences Seminar, University of Cape Town, S. Africa, ‘Personalized Scheduling of Invasive Procedures’.
3. 2022 March: ENAR Spring Meeting, Houston, USA, ‘A Joint Model for Multiple Longitudinal Outcomes, Recurrent and Terminal Events using CF Patient Registry Data’.
4. 2021 December: Australian Trials Methodology Conference, Melbourne, Australia, ‘Using Joint Models to Disentangle the Treatment Effect in an Alzheimer Clinical Trial’.
5. 2021 November: Department of Biostatistics, Amsterdam Medical Center, the Netherlands, ‘Personalized Scheduling of Invasive Procedures’.
6. 2021 October: Department of Biostatistics, University of Michigan, USA, ‘Personalized Biopsies during Active Surveillance of Prostate Cancer Patients’.
7. 2021 July: Webinar Alzheimer’s Association, ‘Modeling the underlying biological processes using a multivariate competing risk joint model’.
8. 2021 May: Inserm Workshop 261, University of Bordeaux, France, ‘An Application of Dynamic Predictions from Joint Models in Precision Screening’.
9. 2021 January: Turkish Biostatistics Chamber, ‘Minimizing the burden of invasive procedures via personalized scheduling’.
10. 2020 December: Computational and Methodological Statistics Conference, London, UK, ‘Minimizing the Burden of Invasive Procedures via Personalized Scheduling’.
11. 2020 May: Recent Advances in Statistical Analysis of Survival Data, Bordeaux, France, ‘Personalized Schedules for Burdensome Surveillance Tests’.
12. 2020 January: National Cancer Institute, the Netherlands, ‘Personalized Schedules for Prostate Cancer’.
13. 2019 May: Lifetime Data Science Conference, Pittsburgh, USA, ‘Using Joint Models for Personalized Optimal Scheduling of Invasive Procedures’.
14. 2019 January: 2nd Workshop on Statistics in Cancer, Bordeaux, France, ‘Using Joint Models for Personalized Optimal Scheduling of Invasive Procedures’.
15. 2018 December: East Mediterranean Region, International Biometric Society, biannual Conference, Jerusalem, Israel, ‘Individualized Dynamic Predictions of Survival with Intermediate Events’.
16. 2018 March: ENAR Spring Meeting, Atlanta, USA, ‘Personalized schedules for prostate biopsies during active surveillance’.

17. 2017 November: CISNET Prostate Cancer NIH Workshop, Rockville, USA, ‘Personalized schedules for prostate biopsies during active surveillance’
18. 2017 August: CEN-ISBS, Vienna, Austria, ‘Modern use of Shared Parameter Models for Dropout’.
19. 2017 July: Joint Statistical Meetings, Baltimore, USA, ‘Improving Dynamic Predictions from Joint Models using Time-Varying Effects’.
20. 2016 August: Joint Statistical Meetings, Chicago, USA, ‘Personalized Screening Intervals for Biomarkers using Joint Models for Longitudinal and Survival Data’.
21. 2015 August: 36th Conference of the International Society for Clinical Biostatistics, Utrecht, the Netherlands, ‘Personalized Screening Intervals for Biomarkers using Joint Models for Longitudinal and Survival Data’.
22. 2015 August: Joint Statistical Meetings, Seattle, USA, ‘Fitting Joint Models in R using Packages JM and JMbayes’.
23. 2015 July: Keynote speaker, Workshop on Flexible Models for Longitudinal and Survival Data with Applications in Biostatistics, Warwick, UK.
24. 2015 June: GdR Statistique & Sante, Paris, France, ‘Personalized Screening Intervals for Biomarkers using Joint Models for Longitudinal and Survival Data’.
25. 2015 May: East Mediterranean Region, International Biometric Society, biannual Conference, Cappadocia, Turkey, ‘Optimal Screening Intervals for Biomarkers using Joint Models for Longitudinal and Survival Data’.
26. 2015 April: 5th Channel Network Conference, International Biometric Society, Nijmegen, the Netherlands, ‘Personalized Screening Intervals for Biomarkers using Joint Models for Longitudinal and Survival Data’.
27. 2014 July: 2nd Workshop on The Statistical Analysis of Multi-Outcome Data, Cambridge University, UK, ‘Weighted Cumulative Effects and Optimal Timing of Visits in Joint Models for Longitudinal and Survival Data’.
28. 2014 April: Keynote speaker, 3rd Conference on Survival Analysis for Junior Researchers, Warwick, UK, ‘Joint Models for Longitudinal and Event Time Data’.
29. 2013 December: Keynote speaker, Workshop on the celebration of 25 years of the Leuven Statistics Research Centre, Leuven, Belgium, ‘Optimizing Personalized Predictions using Joint Models’.
30. 2013 October: Workshop on Dynamic Predictions for Repeated Markers and Repeated Events, Bordeaux, France, ‘Joint modeling crash course’.
31. 2013 August: Joint Statistical Meetings, roundtable, ‘Recent advances in joint models for longitudinal and time-to-event data’.
32. 2013 June: European Organization for Research and Treatment of Cancer, Courses on Clinical Trial Statistics for Non Statisticians, ‘Prognostic factor models’.

33. 2013 April: 7th Meeting of the East Mediterranean Region of the IBS, 'Combining joint models with different association structures using Bayesian model averaging'.
34. 2012 November: Workshop on Statistical Challenges in Risk Prediction, Cambridge University, 'Enhancing risk prediction models using longitudinal measures of risk factors'.
35. 2012 July: Workshop on The Statistical Analysis of Multi-Outcome Data, Université Pierre et Marie Curie – Paris VI, 'Dynamic predictions using joint models for longitudinal and time-to-event data: The effect of parameterization'.
36. 2012 June: Event of the PSDM group of the Biometrics Section (BMS) of the Netherlands Society for Statistics and Operations Research, 'An introduction to the use of R for clinical research'.
37. 2012 June: European Organization for Research and Treatment of Cancer, Courses on Clinical Trial Statistics for Non Statisticians, 'Prognostic factor models'.
38. 2012 April: Department Methodology and Statistics, University of Maastricht 'Joint models for longitudinal and survival data, and dynamic predictions'.
39. 2012 April: ENAR Spring Meeting, Washington DC, USA, 'Different parameterizations for joint models for longitudinal and survival data, and how they affect individualized predictions'.
40. 2011 October: Biometrics Section, Medical University of Vienna, 'Joint models for longitudinal and event time data, and dynamic predictions'.
41. 2011 October: European Organization for Research and Treatment of Cancer, Biostatistics Seminar, 'Joint models and dynamic predictions'.
42. 2011 May: Department of Statistics, University of Bologna, 'Choosing optimal weights when fitting latent variable models with the pairwise likelihood'.
43. 2011 April: 3rd Channel Network Meeting, Bordeaux, 'Prospective accuracy measures in joint models for longitudinal and time-to-event data'.
44. 2011 February: Department of Medical Statistics and Bioinformatics, Leiden University Medical Center, 'ROC accuracy measures for joint models for longitudinal and survival data'.
45. 2011 February: Department of Pneumology and Respiratory Reanimation, University of Paris-South, 'The benefits of using joint models for prognosis in pulmonary arterial hypertension'.
46. 2010 December: XXVth International Biometric Conference, 'Model assessment tools for joint models of longitudinal and time-to-event data'.
47. 2010 September: Visited Department of Biostatistics, Université Victor Segalen, Bordeaux & gave a Seminar 'Dynamic predictions and prospective accuracy in joint models for longitudinal and time-to-event data'.
48. 2010 August: ISCB 31, Montpellier, France, 'Fitting high-dimensional joint models for longitudinal and time-to-event data using Laplace approximations'.

49. 2010 June: Italian Statistical Society Meeting, Padova, ‘Joint modelling of longitudinal and time-to-event data: challenges and future directions’.
 50. 2010 June: Department of Statistics, University of Rome, ‘Simple residuals plots for joint models for longitudinal and event time data’.
 51. 2010 February: Psychometric Computing Workshop, Munich, ‘Marginal maximum likelihood estimation of item response theory models using package `ltm`’.
 52. 2010 January: Visited Department of Statistics and Mathematics, WU Wirtschaftsuniversität Wien & gave two Seminars: (i) Fitting multidimensional latent variable models using an efficient Laplace approximation; (ii) The `ltm` package.
 53. 2009 October: Belgian Statistical Society Annual Meeting, ‘Challenges in joint modelling of longitudinal and time-to-event data’.
 54. 2008 November: Institut de Statistique, Université catholique de Louvain, ‘Laplace approximations for joint models’.
 55. 2008 September: CenStat Special Event, Hasselt University, ‘Joint modelling of longitudinal and time-to-event data using an efficient Laplace approximation’.
 56. 2008 April: Center for Statistics, Hasselt University, ‘A new computational approach for the joint modelling of longitudinal and survival data with high-dimensional random effects’.
 57. 2007 December: Department of Biostatistics, Erasmus Medical Center, ‘Joint modelling of longitudinal and time-to-event data’.
 58. 2007 March: Center for Statistics, Hasselt University, ‘Joint modelling of survival and longitudinal outcomes using copulas’.
 59. 2006 December: Department of Statistics, Athens University of Economics and Business, ‘Joint modelling of survival and longitudinal outcomes using copulas’.
- ◇ Contributed
1. 2023 August: ISCB, ‘Using Joint Models to Estimate Causal Effects for Salvage Therapy after Prostatectomy’
 2. 2023 August: ISCB, ‘JMbays2’
 3. 2020 August: ISCB, ‘Personalized Schedules for Invasive Procedures’
 4. 2019 July: JSM, ‘Personalized Biopsy Schedules for Prostate Cancer Using Joint Models’
 5. 2018 July: IBC, ‘Joint Models with Multiple Longitudinal Outcomes and a Time-to-Event’
 6. 2016 July: IBC, ‘Personalized screening intervals for biomarkers using joint models for longitudinal and survival data’
 7. 2012 July: IWSM, ‘A pseudo-adaptive Gaussian quadrature rule for fitting joint models for longitudinal and time-to-event data’.

8. 2011 March: ENAR Spring Meeting, 'Prospective accuracy measures in joint models for longitudinal and time-to-event data'.
9. 2010 August: Joint Statistical Meetings, 'Fitting high-dimensional joint models for longitudinal and time-to-event data using Laplace approximations'.
10. 2010 March: ENAR Spring Meeting, 'Bayesian semiparametric multivariate joint models'.
11. 2009 August: ISCB 30, 'Residuals for joint models for longitudinal and time-to-event data'.
12. 2009 March: ENAR Spring Meeting, 'Diagnostic tools for joint models for longitudinal and time-to-event data'.
13. 2008 August: useR! meeting, 'Item response theory using the `ltm` package'.
14. 2008 March: ENAR Spring Meeting, 'Fully exponential Laplace approximations for the joint modelling of survival and longitudinal data'.
15. 2007 October: Belgian Statistical Society Meeting, 'A two-part joint model for the analysis of survival and longitudinal binary data with excess zeros'.
16. 2007 August: ISCB 28, 'A two-part joint model for the analysis of survival times and longitudinal binary data with excess zeros'.
17. 2007 July: IWSM, 'Joint modelling of time-to-event and longitudinal binary data with excess zeros'.
18. 2006 October: Belgian Statistical Society Meeting, 'Misspecification in shared parameter models'.
19. 2006 March: ENAR Spring Meeting, 'Sensitivity analysis for shared parameter models using copulas'.
20. 2005 August: ISCB 26, 'Sensitivity analysis in pattern mixture models using the extrapolation method'.

ACADEMIC
ACTIVITIES

- ◇ co-Editor
 - Biostatistics (January 2016 – present)
- ◇ Associate Editor
 - Biostatistics (October 2011 – December 2015)
 - Biometrics (July 2009 – December 2015)
- ◇ Guest Editor
 - Biometrical Journal, special issue in Joint Modeling Techniques (2017)
 - Statistical Methods in Medical Research, special issue in Joint Modeling Techniques (2013)

◊ Board memberships

- Chair of the International Program Committee of the International Biometric Conference 2024 (Jun. 2023 – Dec. 2024)
- Educational committee member of the International Biometric Society (Jan. 2020 – Dec. 2023)
- Scientific committee member of the International Society for Clinical Biostatistics Conference 2021, Lyon, France
- Executive committee member of the International Society for Clinical Biostatistics (Jan. 2019 – Dec. 2023)
- Conference awards committee member of the International Society for Clinical Biostatistics (Jan. 2011 – Dec. 2022)
- Dutch section of the International Biometric Society (Jul. 2013 – Jul 2019)
- Representative Council of the International Biometric Society (Nov. 2014 – Dec. 2018)
- Scientific committee of the International Biometric Conference 2016, Vancouver, Canada
- jury member in 35 PhD defences

◇ International Short Courses on Joint Modeling

1. 2023 August: Joint Statistical Meetings, Toronto, Canada
2. 2023 March: ASA Risk Analysis Section Webinar
3. 2022 March: ASA Lifetime Data Science Section Webinar
4. 2021 November: ISCB course in biostatistics, Prague, Czech Republic
5. 2021 September: Inserm Workshop on Survival Analysis, Bordeaux, France
6. 2021 July: International Society for Clinical Biostatistics annual conference, Lyon, France
7. 2021 May: Swiss Clinical Trial Organization, Statistics & Methodology Platform, Bern, Switzerland
8. 2019 October: SACEMA Centre of Excellence in Epidemiological Modelling and Analysis, Stellenbosch, S. Africa
9. 2019 August: Joint Statistical Meetings, Denver, USA
10. 2018 March: East North American Region of the IBS annual conference, Atlanta, USA
11. 2018 February: Faculty of Medicine, University of Santiago de Compostela, Spain
12. 2018 January: Western Regional Health Authorities, Bergen, Norway
13. 2017 August: Joint Conference on Biometrics & Biopharmaceutical Statistics, Vienna, Austria
14. 2017 August: Joint Statistical Meetings, Baltimore, USA
15. 2017 May: EMR-IBS, Thessaloniki, Greece
16. 2016 August: International Society for Clinical Biostatistics annual conference, Birmingham, UK
17. 2016 August: Joint Statistical Meetings, Chicago, USA
18. 2016 July: XXVIIIth International Biometrics Conference, Victoria, Canada
19. 2016 April: Workshop on Joint Modeling & Beyond, Diepenbeek, Belgium
20. 2015 October: SACEMA Centre of Excellence in Epidemiological Modelling and Analysis, Stellenbosch, S. Africa
21. 2015 February: Flanders Training Network for Methodology and Statistics, University of Gent, Belgium
22. 2014 September: Dept. of Mathematical Sciences, University of Essex, UK
23. 2014 May: Dept. of Statistics, Rijksinstituut voor Volksgezondheid en Milieu, the Netherlands
24. 2014 May: Institute of Statistics, Biostatistics and Actuarial Sciences, Universite Catholique de Louvain, Belgium
25. 2013 October: SACEMA Centre of Excellence in Epidemiological Modelling and Analysis, Stellenbosch, S. Africa

26. 2013 August: Joint Statistical Meetings, Montreal, Canada
27. 2013 June: Erasmus Medical Center, Rotterdam, the Netherlands
28. 2013 April: Macquarie University and George Institute, Sydney, Australia
29. 2012 August: XXVIth International Biometrics Conference, Kobe, Japan
30. 2012 July: International Workshop on Statistical Modelling, Prague, Czech Republic
31. 2010 August: Joint Statistical Meetings, Vancouver, Canada

◇ PhD Graduates

1. Hongchao Qi (09/2018 – 03/2023; applications of power priors in clinical trials with longitudinal outcomes)
2. Katya Mauff (03/2015 – 01/2023; new advances in joint models for longitudinal and survival data)
3. Floor van Oudenhoven (01/2017 – 09/2022; methodological developments in joint models with applications in Alzheimer)
4. Anne-Sophie Schuurman (05/2017 – 09/2022; Prognosis of Acquired Cardiovascular Disease)
5. Grigorios Papageorgiou (11/2015 – 12/2021; joint models with time-varying treatment strategies)
6. Anirudh Tomer (08/2016 – 09/2020; personalized screening intervals using joint models)
7. Oscar Rueda Ochoa (08/2015 – 07/2020; advanced models for hypertension)
8. Sara Baart (12/2015 – 10/2019; topic: joint models for longitudinal and survival data for case-cohort designs)
9. Nicole Erler (09/2014 – 07/2019; topic: multiple imputation of missing covariates with complex outcomes)
10. Eleni-Rosalina Andrinopoulou (09/2010 – 11/2014; topic: survival analysis & joint modeling)
11. Magdalena Murawska (11/2009 – 04/2014; topic: multi-state models & joint modeling)

◇ Supervision of PhD Students

1. Zhenwei Yang (07/2021 – present; personalized scheduling of invasive procedures)
2. Teun Petersen (01/2021 – present; personalized screening intervals using joint models with applications in cardiology)
3. Pedro Miranda Afonso (12/2019 – present; joint models with recurrent events and terminating event processes with application in cystic fibrosis)
4. Aglina Lika (01/2019 – present; multivariate mixed effects models)

◇ Supervision of MSc Students

- Judith Rijnhart (09/2014 – 06/2015)
- Illary Sbizzera (10/2011 – 03/2012)
- Nathan Touati (04/2010 – 06/2010)

◇ Courses

- 2016 – present: Statistical Analysis of Repeated Measurements Data, NIHES MSc Programs, 1.4 ECTS (course coordinator)
- 2015 – present: Joint Models for Longitudinal and Survival Data, Erasmus Summer Program, 1.4 ECTS (course coordinator)
- 2012 – present: Biostatistics Methods II: Classical Regression Models, NIHES MSc Programs, 4.3 ECTS (course coordinator)
- 2013 – present: Introductory statistics courses for medical students (1st, 2nd and 4th year, Desiderius School)
- 2010 – 2014: Introductory Course for the Quantitative Researcher; NIHES MSc Program, 1.4 ECTS
- 2010 – 2013: Survival Analysis for Clinicians; Erasmus Winter Program 1.9 ECTS (course coordinator)
- 2010 – 2011: A Basic Course in R; MolMed Graduate Courses for PhDs 0.5 ECTS (course coordinator)
- 2009 – 2011: Computational Statistics; Leiden Masters Track Statistical Science Program, 3.0 ECTS (jointly with Prof. dr. P. Eilers)

◇ Professional Affiliations

- American Statistical Association
- International Biometric Society (Dutch region)
- International Society for Clinical Biostatistics
- Netherlands Society for Statistics and Operations Research

◇ Referee for

- Annals of Applied Statistics, Annals of Statistics, Australian & New Zealand Journal of Statistics, Biometrical Journal, Biometrics, Biostatistics, Computational Statistics & Data Analysis, Journal of the American Statistical Association, Journal of Probability and Statistics, Journal of Statistical Software, Psychometrika, Statistical Modelling, Statistics in Biopharmaceutical Research, Statistics in Biosciences, Statistics in Medicine

◇ Other

- Organizer of the Mixed Effects Models Working Group at Erasmus MC

- Organizer of the Spring Symposium in Biostatistics, Erasmus MC for 2011; topic: Joint Modeling Techniques with Applications in Longitudinal Studies

SKILLS

◇ Computer Skills

- Computer languages: fluent in R, \LaTeX ; some C++ and HTML
- Statistical packages: SPSS
- MS-Office, MS-Windows, MS-DOS

◇ Languages

- Greek: mother tongue
- English: fluent (spoken & written)
- Dutch: fluent (spoken & written)
- French: basic skills

WORK

EXPERIENCE

◇ **CPO consultant**, Dept. Biostatistics, Erasmus University Medical Center (September 2008 – present)

- statistical advice and statistical consulting to members of Erasmus MC

◇ **Research assistant**, Leuven Biostatistics and statistical Bioinformatics Centre, Katholieke Universiteit Leuven (October 2003 – August 2008)

- statistical advice to members of the Faculty of Medicine
- statistical analysis of research projects for members of the Faculty of Medicine
- statistical analysis for clinical trials