

Publications de l'unité de recherche "Systèmes, Estimation, Commande et Optimisation"

2020

Article/Dans un journal avec peer-review

- Dewasme Laurent, Vande Wouwer Alain, "Model-Free Extremum Seeking Control of Bioprocesses: A Review with a Worked Example" in Processes, 8, 10, 1209, 10.3390/pr8101209 (2020)
Texte intégral : [Dewasme2020b.pdf](#) (Accès libre)
- Abadli Merouane, Dewasme Laurent, Tebbani Sihem, Dumur Didier, Vande Wouwer Alain, "Generic model control applied to E. coli BL21(DE3) fed-batch cultures" in Processes, 8, 7, 772, <https://doi.org/10.3390/pr8070772> (2020)
Texte intégral : [Abadli2020.pdf](#) (Accès libre)
- ABBATE Thomas, Sbarciog Mihaela, Dewasme Laurent, Vande Wouwer Alain, "Experimental Validation of a Cascade Control Strategy for Continuously Perfused Animal Cell Cultures" in Processes, 8, 4, 413, 10.3390/pr8040413 (2020)
Texte intégral : [Abbate2020.pdf](#) (Accès libre)
- Dewasme Laurent, "Neural network-based software sensors for the estimation of key components in brewery wastewater anaerobic digester: an experimental validation" in Water Science and Technology, 80, 10, 1975-1985, 10.2166/wst.2020.019 (2020)
Texte intégral : [Dewasme2020.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)

Colloque/Article dans les actes avec comité de lecture

- Lopez Jimenez Jorge Alfredo, Dewasme Laurent, Quijano Nicanor, Vande Wouwer Alain, "Towards agent-based modeling of crop irrigation" in "11th International Conference on Simulation and Modelling in the Food and Bio-Industry", Ghent, Belgium (2020)
- Dewasme Laurent, "Brewery wastewater treatment plant key-component estimation using moving-window recurrent neural networks" in "21st IFAC World Congress", Berlin, Germany (2020)
Texte intégral : [Dewasme2020b.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)
- Sbarciog Mihaela, Vande Wouwer Alain, Van Impe Jan F.M., Dewasme Laurent, "Extremum Seeking Control of a Three-Stage Anaerobic Digestion Model" in "21st IFAC World Congress", Berlin, Germany (2020)
Texte intégral : [Sbarciog2020.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)

Colloque/Présentation - communication orale

- Dewasme Laurent, "In silico modelling of animal cell cultures" in "S3martMed Virtual Brokerage Event", Lyon, France (2020)
Texte intégral : [Presentation_25062020.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)

Divers/Autre

- Feudjio Letchindjio Christian Gabin, Dewasme Laurent, Deschênes Jean-Sébastien, Vande Wouwer Alain, "An Original Extremum Seeking Strategy applied to Photobioreactors" (2020)

2019

Article/Dans un journal avec peer-review

- Abbate Thomas, Dewasme Laurent, Vande Wouwer Alain, Bogaerts Philippe, "Adaptive Flux Variability Analysis of HEK Cell Cultures" in Computers and Chemical Engineering (2019)
Texte intégral : [Abbate2019c.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)
- ABBATE Thomas, Fernandes de Sousa Sofia, Dewasme Laurent, Bastin Georges, Vande Wouwer Alain, "Inference of dynamic macroscopic models of cell metabolism based on elementary flux modes analysis" in Biochemical Engineering Journal (2019)
Texte intégral : [Abbate2019b.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)
- Huynh Hoai, Assadi Hamed, Rivière Edouard, Verlinden Olivier, Ahmadi Keivan, "Modelling the dynamics of industrial robots for milling operations" in Robotics and Computer-Integrated Manufacturing, 61, 101852 (2019)
Texte intégral : [RCIM_ModellingDynamicsRobot_HNH_2019.pdf](#) (Accès libre)
- Fekih-Salem Radhouane, Dewasme Laurent, Castro Cristiana, Nobre Clarisse, Hantson Anne-Lise, Vande Wouwer Alain, "Sensitivity analysis and reduction of a dynamic model of a bioproduction of fructo oligosaccharides" in Bioprocess and Biosystems Engineering, 42, 11, 1793–1808, doi.org/10.1007/s00449-019-02176-9 (2019)
Texte intégral : [FekihSalem2019b.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)
- Fekih-Salem Radhouane, Schorsch Julien, Dewasme Laurent, Castro Cristiana, Hantson Anne-Lise, Kinnaert Michel, Vande Wouwer Alain, "Data-driven modeling and optimal control of the production of Fructo-Oligosaccharides by Aureobasidium pullulans" in Journal of Process Control, 81, 136-149 (2019)
Texte intégral : [FekihSalem2019a.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)
- Feudjio Letchindjio Christian, Dewasme Laurent, Deschênes Jean-Sébastien, Vande Wouwer Alain, "An extremum seeking strategy based on block-oriented models: application to biomass productivity maximization in micro-algae cultures" in Industrial and Engineering Chemistry Research, 58, 30, 13481-13494, doi.org/10.1021/acs.iecr.9b00667 (2019)
Texte intégral : [Feudjio2019_inpress.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)
- Suvarov Paul, Lee Ju Weon, Vande Wouwer Alain, Seidel-Morgenstern Andreas, Kienle Achim, "Online estimation of optimal operating conditions for simulated moving bed chromatographic processes" in Journal of Chromatography. A, 1602, 266-272, https://doi.org/10.1016/j.chroma.2019.05.042 (2019)
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- Chauvon Guillaume, Saucez Philippe, Vande Wouwer Alain, "An implementation of geometric integration within Matlab" in Simulation, 1-13, https://doi.org/10.1177/0037549719835026 (2019)
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- Dewasme Laurent, Vande Wouwer Alain, "Experimental validation of a full-horizon interval observer applied to hybridoma cell cultures" in International Journal of Control, 10.1080/00207179.2019.1608372 (2019)
Texte intégral : [Dewasme2019b.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)
- Dewasme Laurent, Sbarciog Mihaela, Rocha-Cozatl Edmundo, Haugen Finn, Vande Wouwer Alain, "State and unknown input estimation of an anaerobic digestion reactor with experimental validation" in Control Engineering Practice, 85, 280-289, doi.org/10.1016/j.conengprac.2019.02.003 (2019)
Texte intégral : [Dewasme2019.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)
- Dimassi Habib, Winkin Joseph, Vande Wouwer Alain, "A sliding mode observer for a linear reaction-convection-diffusion equation with disturbances" in Systems and Control Letters, 124, 40-48 (2019)
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- Abbate Thomas, Dewasme Laurent, Vande Wouwer Alain, "Variable selection and parameter estimation of viral amplification in vero cell cultures dedicated to the production of a dengue vaccine" in Biotechnology Progress, 35, 1, https://doi.org/10.1002/btpr.2687 (2019)
Texte intégral : [Abbate2018.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)

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- Yupanqui Tello Ivan Francisco, Vande Wouwer Alain, Coutinho Ferreira Daniel, "Backstepping observer design for a tubular catalytic cracking reactor" in "Cape Forum" , Liege, Belgique (2019)
Texte intégral : [Cape_Liege.pdf](#) (Accès libre)
- Garcia Tenorio Camilo, Vande Wouwer Alain, Mojica-Nava Eduardo, "Order reduction for EDMD based on observable error: Application to the anaerobic digestion model." in "Cape Forum" , Liege, Belgique (2019)
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- Dewasme Laurent, Sobry Nikolaas, "Data-driven estimator of brewery wastewater treatment plant key components" in "9th IWA Specialized Conference on Sustainable Viticulture, Winery Wastes & Agri-industrial Wastewater Management" , Mons, Belgium (2019)
Texte intégral : [Abstract_Dewasme_final.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)
- Garcia Tenorio Camilo, Vande Wouwer Alain, Mojica-Nava Eduardo, "Biochemical Reaction Networks, Dynamics and Regions of Attraction: A Koopman Operator Based Approach." in "38th Benelux meeting on Systems and Control" , Lommel, Belgique (2019)
Texte intégral : [Bene2019.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)
- Lopez Jimenez Jorge Alfredo, Vande Wouwer Alain, Quijano Nicanor, "Particle filter estimation of crop dynamics" in "38th Benelux meeting on Systems and Control" , Lommel, Belgique (2019)
Texte intégral : [ParticleFilterEstimationOfCropDynamics.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)
- Gorrini Federico, Biagiola Silvina, Jose Figueroa, Vande Wouwer Alain, "Reaction Rate Estimation and MPC of Hybridoma Cell Cultures" in "38th Benelux meeting on Systems and Control" , Lommel, Belgique (2019)
Texte intégral : [Benelux_2019_Gorrini.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)
- Njinwoua Brice, Vande Wouwer Alain, "Collision-free formation control of quadcopters on leader-follower topology" in "38th Benelux meeting on Systems and Control" , Lommel, Belgique (2019)
Texte intégral : [Benelux19Brice.pdf](#) (Accès libre)

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- Feudjio Letchindjio Christian, Dewasme Laurent, Vande Wouwer Alain, "Extremum-Seeking for micro-algae biomass productivity maximization: an experimental validation" in "8th IFAC Conference on Foundations of Systems Biology (FOSBE)" , Valencia, Spain (2019)
- Hernandez Velasquez Nathalie, Mojica-Nava Eduardo, Vande Wouwer Alain, "VRFT Control for an Alternate Activated Sludge Process with a Coupled Settling Model" in "2019 IEEE 4th Colombian Conference on Automatic Control" , Medellin, Colombie (2019)
Texte intégral : [CCAC_2019_paper_73.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)
- Garcia Tenorio Camilo, Tellez-Castro Duvan, Mojica-Nava Eduardo, Vande Wouwer Alain, "Analysis of a Class of Hyperbolic Systems via Data-Driven Koopman Operator" in "23rd International Conference on System Theory, Control and Computing (ICSTCC)" , Sinaia, Romania (2019)
Texte intégral : [0171.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)
- Abadli Merouane, Dewasme Laurent, Dumur Didier, Tebbani Sihem, Vande Wouwer Alain, "Generic model control of an Escherichia coli fed-batch culture" in "23rd International Conference on System Theory, Control and Computing (ICSTCC)" , Sinaia, Romania (2019)
- Biagiola Silvina, Jose Figueroa, Vande Wouwer Alain, "A high-gain observer approach for monitoring microalgae cultures" in "XVIII Reunión de trabajo en Procesamiento de la Información y Control" , ISBN: 9789871648443, article 142, Bahia Blanca, Argentina (2019)
Texte intégral : [RPIC2019_142.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)

- Gorrini Federico, Biagiola Silvina, Jose Figueroa, Vande Wouwer Alain, "MPC for Maximization of Microalgae Productivity" in "XVIII Reunión de trabajo en Procesamiento de la Información y Control", ISBN: 9789871648443, article 101, Bahía Blanca, Argentina (2019)
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- Sbarciog Mihaela, Vande Wouwer Alain, "Maximization of Methane Production in Anaerobic Digestion Systems: an Extremum-Seeking Approach" in "9th IWA Specialized Conference on Sustainable Viticulture, Winery Wastes & Agri-industrial Wastewater Management", Mons, Belgium (2019)
Texte intégral : [Sbarciog_Winery2019_final.pdf](#) (Accès libre)
- Garcia Tenorio Camilo, Sbarciog Mihaela, Mojica-Nava Eduardo, Vande Wouwer Alain, "Anaerobic Digestion, Dynamics and Regions of Attraction: A Koopman Operator Based Approach" in "9th IWA Specialized Conference on Sustainable Viticulture, Winery Wastes & Agri-industrial Wastewater Management", Mons, Belgium (2019)
Texte intégral : [Winery.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)
- Feudjio Letchindjio Christian, Dewasme Laurent, Deschênes Jean-Sébastien, Vande Wouwer Alain, "A Slope Seeking-Based Approach for Optimal and Sub-Optimal SISO Process Control: Application to Microalgae Culture" in "12th IFAC Symposium on Dynamics and Control of Process Systems, including Biosystems (DYCOPS 2019)", 364-369, Florianopolis, Brazil (2019)
Texte intégral : [Feudjio2019.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)
- ABBATE Thomas, Dewasme Laurent, Bogaerts Philippe, Vande Wouwer Alain, "Adaptive Flux Variability Analysis: A Tool to Deal with Uncertainties" in "12th IFAC Symposium on Dynamics and Control of Process Systems, including Biosystems (DYCOPS 2019)", 70-75, Florianopolis, Brazil (2019)
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- Dewasme Laurent, Raquez Jean Marie, "ALPO - Bioplastics from microalgae cultures" in "International Conference on Green Chemistry and White Biotechnology : (Bio-)Polymers and Ecocircularity: From Challenges to Opportunities", Gosselies, Belgium (2019)
Texte intégral : [Greenwin_10042019.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)

Travail avec promoteur/Doctorat

- Huynh Hoai, "Robotic machining: Development and validation of a numerical model of robotic milling to optimise the cutting parameters", Verlinden Olivier, Rivière Edouard, 2015-10-01, soutenue le 2019-09-19 (2019)
Texte intégral : [Thesis_RoboticMilling_HNH_Public_Cover.pdf](#) (Accès libre)

 2018

Article/Dans un journal avec peer-review

- Sbarciog Mihaela, Giovannini Giannina, Chamy Rolando, Vande Wouwer Alain, "Control and estimation of anaerobic digestion processes using hydrogen and volatile fatty acids measurements" in Water Science and Technology, 78, 10, 2027-2035, <https://doi.org/10.2166/wst.2018.465> (2018)
Texte intégral : [Sbarciog_WST_2018_PostPrint.pdf](#) (Accès libre)
- Coutinho Daniel, Vargas Alejandro, Feudjio Letchindjio Christian, Benavides Castro Micaela, Vande Wouwer Alain, "A robust approach to the design of super-twisting observers – application to monitoring microalgae cultures in photo-bioreactors" in Computers and Chemical Engineering, 121, 46-56, <https://doi.org/10.1016/j.compchemeng.2018.07.006> (2018)
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- Retamal Cristina, Dewasme Laurent, Hantson Anne-Lise, Vande Wouwer Alain, "Parameter estimation of a dynamic model of Escherichia coli fed-batch cultures" in Biochemical Engineering Journal, 135, 22-35 (2018)
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- Giovannini Giannina, Sbarciog Mihaela, Steyer Jean-Philippe, Chamy Rolando, Vande Wouwer Alain, "On the derivation of a simple dynamic model of anaerobic digestion including the evolution of hydrogen" in Water Research, 134, 209-225 (2018)

Colloque/Abstract

- Njinwoua Brice, Vande Wouwer Alain, "Attitude Control of a UAV in presence of motor asymmetry" in "37th Benelux Meeting on Systems and Control" , Soesterberg, The Netherlands (2018)
Texte intégral : [Benelux.pdf](#) (Accès libre)[Benelux.pdf](#) (Accès libre)
- Abadli Merouane, Tebbani Sihem, Dumur Didier, Dewasme Laurent, Vande Wouwer Alain, "Nonlinear model predictive control of Escherichia coli culture" in "37th Benelux Meeting on Systems and Control" , Soesterberg, The Netherlands (2018)
Texte intégral : [Abadli2018.pdf](#) (Accès réservé aux membres du personnel de l'UMONS)

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- Dimassi Habib, Winkin Joseph, Vande Wouwer Alain, "Robust state estimation for a linear reaction-convection-diffusion equation under unknown disturbances" in "IEEE Conference on Decision and Control" , Miami, USA (2018)
Texte intégral : [Dimassi-Winkin-VanDeWouwer_CDC_2018_final.pdf](#) (Accès libre)
- Lopez Jimenez Jorge Alfredo, Quijano Nicanor, Vande Wouwer Alain, "On the Use of Agent-Based Modeling for Smart Farming" in "22nd International Conference on System Theory, Control and Computing (ICSTCC 2018)" , Sinaia, Romania (2018)
- Feudjio Letchindjio Christian, Coutinho Daniel, Vargas Alejandro, Vande Wouwer Alain, "An LMI-based approach to the design of super-twisting observers with application to a lipase production process from olive oil by Candida rugosa" in "22nd International Conference on System Theory, Control and Computing (ICSTCC 2018)" , 360-365, Sinaia, Romania (2018)
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- Feudjio Letchindjio Christian, Deschênes Jean-Sébastien, Dewasme Laurent, Vande Wouwer Alain, "Extremum seeking based on a Hammerstein-Wiener representation" in "10th IFAC Symposium on Advanced Control of Chemical Processes" , 738-743, Shenyang, Chine (2018)
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- Huynh Hoai, Rivière Edouard, Verlinden Olivier, "Multibody modelling of a flexible 6-axis robot dedicated to robotic machining" in "The 5th Joint International Conference on Multibody System Dynamics" , Lisbonne, Portugal (2018)
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- Njinwoua Brice, Vande Wouwer Alain, "Cascade attitude control of a quadcopter in presence of motor asymmetry" in "3rd IFAC Conference on Advances in Proportional-Integral-Derivative Control" , Ghent, Belgium (2018)
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- Gorrini Federico, Biagiola Silvina, Jose Figueroa, Vande Wouwer Alain, "Simple Observer-Based Feedback Strategy for Controlling Fed-Batch Hybridoma Cultures" in Industrial & Engineering Chemistry Research, 56, 51, 15072–15082 (2017)
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- Grimard Jonathan, Dewasme Laurent, Vande Wouwer Alain, "Model-based control of a twin screw extruder" in "36th Benelux Meeting on Systems and Control" , Spa, Belgium (2017)
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- Feudjio Letchindjio Christian, Crémer Céline, Deschênes Jean-Sébastien, Vande Wouwer Alain, "Observability Analysis of a Microalgae Culture Model" in "36th Benelux Meeting on Systems and Control" , Spa, Belgium (2017)
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- Feudjio Letchindjio Christian, Queinnec Isabelle, Vande Wouwer Alain, "Test of a Hybrid Linear Observer Applied to an Alternate Phase Activated Sludge Process" in "36th Benelux Meeting on Systems and Control" , Spa, Belgium (2017)
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- Huynh Hoai, Verlinden Olivier, Rivière Edouard, "Robotic Machining Simulation using a Simplified Multibody Model" in "DAAAM International Symposium on Intelligent Manufacturing and Automation" , 0885-0894, Zadar, Croatie (2017)
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- Dewasme Laurent, Côte François, Filee Patrice, Hantson Anne-Lise, Vande Wouwer Alain, "Dynamic modeling of hybridoma cell cultures using maximum likelihood principal component analysis" in "20th IFAC World Congress" , Toulouse, France (2017)
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- Feudjio Letchindjio Christian, Queinnec Isabelle, Vande Wouwer Alain, "Hybrid linear observer for an activated sludge process with alternate phases" in "12th IWA Specialized Conference on Instrumentation, Control & Automation (ICA 2017)" , pages 61-64, Québec City, Canada (2017)
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