

## Accepted Manuscript

Title: Modeling, Estimation and Control of the Anaesthesia Process

Authors: Ioana Nanullcu, Efstratios N. Pistikopoulos

PII: S0098-1354(17)30072-8  
DOI: <http://dx.doi.org/doi:10.1016/j.compchemeng.2017.02.016>  
Reference: CACE 5719

To appear in: *Computers and Chemical Engineering*

Received date: 30-9-2016  
Revised date: 27-1-2017  
Accepted date: 6-2-2017



Please cite this article as: Nax219;cu, Ioana., & Pistikopoulos, Efstratios N., Modeling, Estimation and Control of the Anaesthesia Process. *Computers and Chemical Engineering* <http://dx.doi.org/10.1016/j.compchemeng.2017.02.016>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# Modeling, Estimation and Control of the Anaesthesia Process<sup>1</sup>

Ioana Naşcu<sup>a</sup> and Efstratios N. Pistikopoulos<sup>a,\*</sup>

<sup>a</sup>Texas A&M Energy Institute and Artie McFerrin Department of Chemical Engineering, Texas A&M, College Station, TX, USA

\*Corresponding author Tel.: +19794580259, email address: stratos@tamu.edu

## Highlights

- A mathematical model for the drug distribution and drug effect of intravenous anaesthesia was discussed.
- Different estimation techniques have been designed, implemented and tested: Kalman filter, offline moving horizon estimation and online moving horizon.
- The state estimators have been implemented simultaneously with mp-MPC and simulated comparatively in the induction and maintenance phases of intravenous anaesthesia, both with and without noise influencing the output.
- The developed strategies successfully address two of the main challenges in the control of the intravenous depth of anaesthesia: nonlinearity and inter- and intra- patient variability.

---

<sup>1</sup> A tribute to Prof. Rafiq Gani for his intellectual leadership in Process Systems Engineering

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات