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Subject example:

**Concept #1**
Micropumps

**AND**

**Concept #2**
Medical Field

- Micropump*
- Micro pump
- MEMS pump*
- BioMEMS pump*

- OR

- Medic*
- Biomedic*
- Pharmac*
- Therap*
- Drug*

Use OR to combine the words within the same concept. Write each concept in parentheses.

Command Line Search | Advanced Search

Operators: | Select field:
Select operator |  

**AB(micropump* OR "micro pump" OR micro pumps* OR MEMS pump* OR BioMEMS pump*) AND AB(medic* OR biomedic* OR pharmac* OR therap* OR drug*)**

Publication date: [Last 5 years]
Combine the concepts using AND. Precede each concept with AB to search in the Abstract field. Limit the search to the last 5 years.

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This thesis seems interesting.
The “Literature review” section is found within the Full Text of the thesis. This section may have a different title.

Patient-specific controller for an implantable artificial pancreas

Wei Yvonne Audrey Ho Yick National University of Singapore (Singapore), ProQuest Dissertations Publishing, 2016. 10304294.

Abstract

Diabetes is an untreated results in prolonged hyperglycaemia which can lead to diabetic retinopathy, neuropathy and nephropathy. Treatment for diabetes include oral medication and insulin therapy. The risk associated with insulin therapy is hypoglycaemia. Diabetics monitor their blood glucose levels using capillary blood glucose monitors or Continuous Glucose Monitoring Systems (CGMS).

The aim of the artificial pancreas is to improve the quality of diabetics’ lives. An electromechanical artificial pancreas essentially consists of a glucose sensor, drug delivery system and a controller. An issue with subcutaneous glucose sensing and insulin delivery are the time lags between venous and interstitial fluid glucose concentrations. An implantable artificial pancreas employing intravenous glucose monitoring and insulin delivery more closely mimics pancreatic insulin secretions to the portal vein.

Model Predictive Control (MPC) can be extended for hypoglycaemia avoidance and to take various constraints into account. Parameters of models used have inter-patient variance hence patient specific models are preferred. Patient parameters can change over time with physiological changes. An artificial pancreas system that adaptively tunes the patient specific controller is proposed.

The artificial pancreas is to be implanted in the ilium and the device has to fit the space and encapsulate the controller and the insulin delivery system.