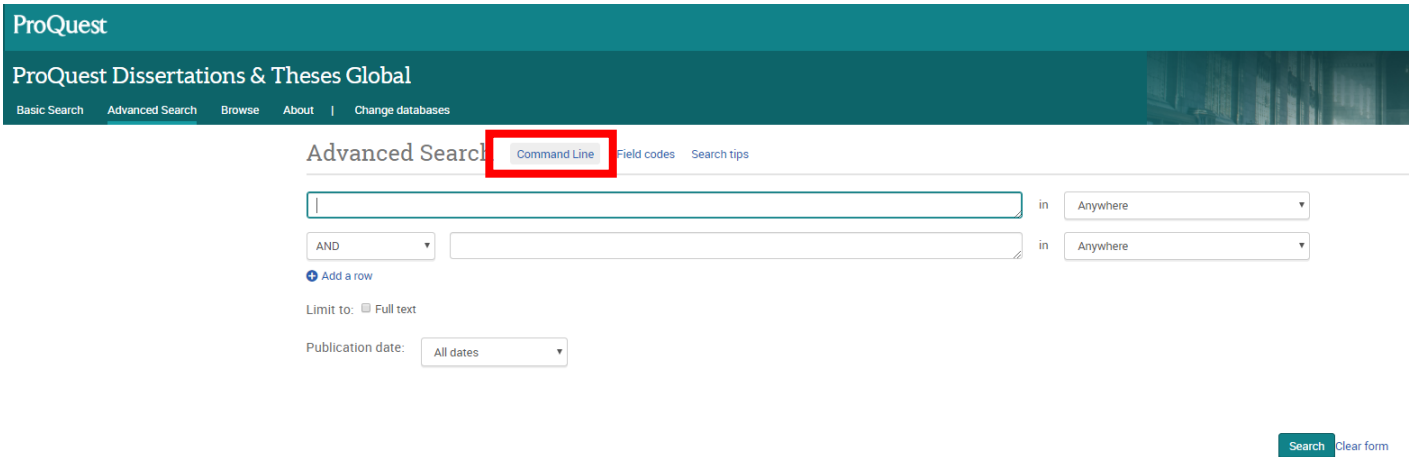


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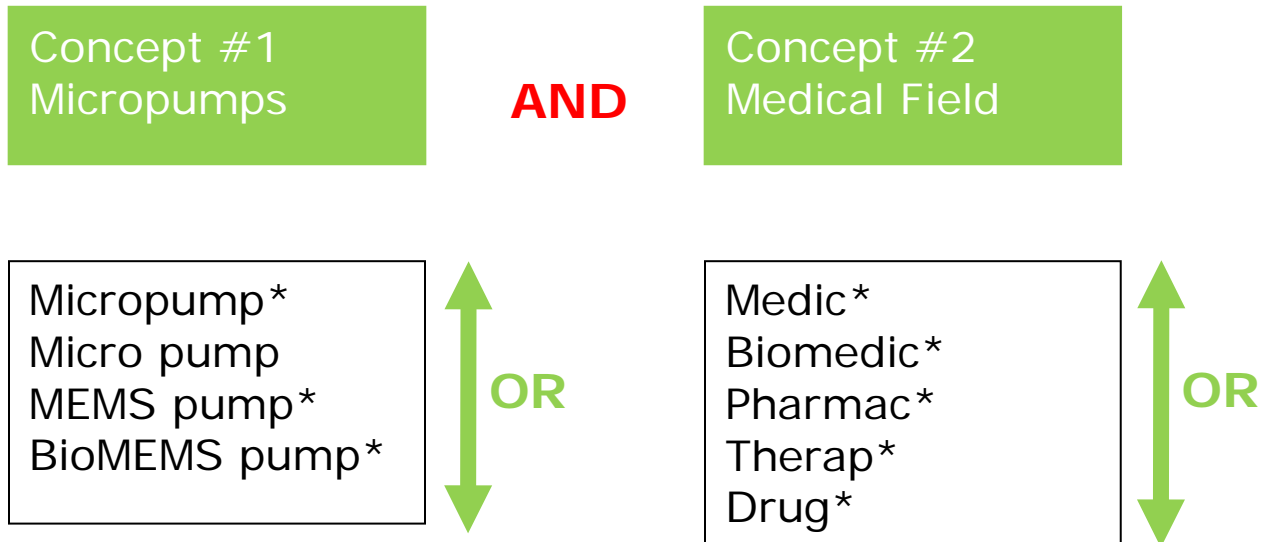
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Command Line Search [Advanced Search](#)

Operators: ⓘ Search fields:

Select operator Select field [Add to form](#)

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\*)

Full text

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.

## Command Line Search Advanced Search

Operators: ⓘ

Search fields:

Select operator

Select field

Add to form

AB[micropump\* OR "micro pump" OR "micro pumps" OR MEMS pump\* OR BioMEMS pump\*]AND AB[biomedic\* OR biomedical\* OR pharmac\* OR therap\* OR drug\*]

Full text

Publication date:

Last 5 years

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16 results

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Publication date: 2016 - 2020 (years)

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Subject

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- Microfluidics and Bio-MEMS for Next Generation Healthcare**  
Rahman, M. Arifur.University of Hawaii at Manoa, ProQuest Dissertations Publishing, 2018. 11008610.  
...actuators for **biomedical** applications are known as bio-microelectromechanical...  
...and bio-MEMS technology provide essential tools...  
...**pump**. Four different structures are demonstrated: parallel-tube, folded-tube,...

[Abstract/Details](#) [Preview - PDF \(238 KB\)](#) [Full text - PDF \(11 MB\)](#) [Order a copy](#)
- Synthesis and Characterization of Novel Polyurethanes and Polyimides**  
Kull, Kenneth.University of South Florida, ProQuest Dissertations Publishing, 2016. 10241446.  
...showed no toxicity of these samples as indicated by USP Class VI, **MEM** Elution...  
...polymers and can be utilized as peristaltic **pump** tubing, balloon catheters,...  
...tubes and **medical** equipment gaskets and seals. Polyimides are a family of...

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Julien, Tamalia.University of South Florida, ProQuest Dissertations Publishing, 2018. 10785248.  
...and uses within the **medical** and industrial fields. An industrial batch of an

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

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

[Full text - PDF](#) [Preview - PDF](#) [Abstract/Details](#) [References 129](#) [Hide highlighting](#)

### Abstract

[Translate](#) ▾

Diabetes if 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