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# Sheet Metal Industries

*Faculty of Engineering.  
Department of Mechanical  
Engineering.  
This book comprises*

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*chapters on research work done around the globe in the area of artificial intelligence (AI) applications in sheet metal forming. The first chapter offers an*

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*introduction to various AI techniques and sheet metal forming, while subsequent chapters describe traditional procedures/methods used in various sheet metal*

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*forming processes, and focus on the automation of those processes by means of AI techniques, such as KBS, ANN, GA, CBR, etc. Feature recognition and the manufacturability*

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*assessment of sheet metal parts, process planning, strip-layout design, selecting the type and size of die components, die modeling, and predicting die life are*

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*some of the most important aspects of sheet metal work. Traditionally, these activities are highly experience-based, tedious and time consuming. In response, researchers in*

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*several countries have applied various AI techniques to automate these activities, which are covered in this book. This book will be useful for engineers working in*

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*sheet metal industries, and will serve to provide future direction to young researchers and students working in the area.*

*Industry series. Roofing, siding, and sheet metal*



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*Sheet Metal Stamping Dies*

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## *The Metal Industries in Cincinnati*

Process Control for Sheet-Metal Stamping presents a comprehensive and structured approach to the design and implementation of controllers for the sheet

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metal stamping process. The use of process control for sheet-metal stamping greatly reduces defects in deep-drawn parts and can also yield large material savings from reduced scrap. Sheet-metal forming is a complex

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process and most often characterized by partial differential equations that are numerically solved using finite-element techniques. In this book, twenty years of academic research are reviewed and the resulting

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technology transitioned to the industrial environment. The sheet-metal stamping process is modeled in a manner suitable for multiple-input multiple-output control system design, with commercially available

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sensors and actuators. These models are then used to design adaptive controllers and real-time controller implementation is discussed. Finally, experimental results from actual shop floor deployment are



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presented along with ideas for further improvement of the technology. Process Control for Sheet-Metal Stamping allows the reader to design and implement process controllers in a typical manufacturing

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environment by retrofitting standard hydraulic or mechanical stamping presses and as such will be of interest to practising engineers working in metal-working, automotive and aeronautical industries.

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Academic researchers studying improvements in process control and how these affect the industries in which they are applied will also find the text of value.

Finally, in a single volume,

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a reference that presents engineering-level information on press-working sheet metal, die design, and die manufacturing! Concentrating on simple, practical methods, this book will be an invaluable

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drawings for each type of die Provides a complete picture of the knowledge and skills needed for the effective design of dies for sheet metal cutting, forming and deep drawing operations, highlighted with



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People have been hammering metal  
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